

**FOREST BIODIVERSITY AND CLEARCUTTING
PROHIBITION ACT OF 1993**

Y 4. AG 8/1:103-43

Forest Biodiversity and Clearcutting...

HEARING

BEFORE THE

SUBCOMMITTEE ON SPECIALTY CROPS
AND NATURAL RESOURCES

OF THE

COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

ON

H.R. 1164

OCTOBER 28, 1993

Serial No. 103-43



JUN 27 1994

Printed for the use of the Committee on Agriculture

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FOREST BIODIVERSITY AND CLEARCUTTING PROHIBITION ACT OF 1993

THURSDAY, OCTOBER 28, 1993

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SPECIALTY CROPS
AND NATURAL RESOURCES,
COMMITTEE ON AGRICULTURE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:20 a.m., in room 1302, Longworth House Office Building, Hon. Charlie Rose (chairman of the subcommittee) presiding.

Present: Representatives Baesler, Bishop, Condit, Thurman, Pomeroy, English, Volkmer, Lewis, Doolittle, Kingston, and Pombo.

Also present: Representatives Williams of Montana and Smith of Oregon, members of the committee.

Staff present: Jan Rovecamp, clerk; Keith Pitts, Alexandra Buell, and Stacy Carey.

OPENING STATEMENT OF HON. HAROLD L. VOLKMER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSOURI

Mr. VOLKMER [assuming chair]. The subcommittee will come to order.

I am assuming the chair—in the absence of the chairman—due to the fact that the chairman is on his way but not here and asked me to go ahead and get started, as the former chairman of the Forests, Family Farms, and Energy Subcommittee.

This morning we are here to review H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act, introduced by the gentleman from Texas, Mr. Bryant. And we have a long list of panels here today, and I am sure it is going to take quite a bit of time.

This is legislation that had been reviewed in the past by the appropriate subcommittees. I welcome the opportunity to review it again with the gentleman from Texas and others because the matter is still a major concern to many people in this country, the matter of clearcutting; and I also believe that the matter of how we manage our forests and the areas of biodiversity and according to ecosystem rather than as we have in the past.

So we will begin with our first panel, our good friend and colleague, introducer of the bill, the one who keeps us on the issue, the Honorable John Bryant, a Member of Congress from Texas, along with the Honorable Wally Herger, a Member of Congress from California, former member of this full committee and the subcommittee before he went on to bigger and better things.

[H.R. 1164 appears at the conclusion of the hearing.]

Mr. VOLKMER. At this time, does the gentleman from Florida have any statement he would like to make?

Mr. LEWIS. Mr. Chairman, I have no statement to make, and I congratulate you on assuming the chair and starting this hearing.

Mr. VOLKMER. Is there any other member of the subcommittee who would like to make a statement?

Any prepared statements received from the members will be placed at this point in the record.

[The prepared statements of Mr. Pombo and Mr. Smith of Oregon follow:]

**STATEMENT BY
THE HON. RICHARD POMBO (CA-11TH)
BEFORE THE
SUBCOMMITTEE ON SPECIALTY CROPS
OF THE
HOUSE COMMITTEE ON AGRICULTURE
ON
28 OCTOBER, 1993**

Mr. Chairman,

Regrettably, I must oppose HR 1164 because I am convinced that, while well intentioned, this legislation would deprive those who oversee our nation's forests of an important tool for sound and effective forest management.

This bill would provide a wide and indiscriminate prohibition on clear-cutting, and other forms of even-aged management, to the national forests, native American trust forests administered by the Bureau of Land Management, military lands, and lands administered by the Fish and Wildlife Service.

I am concerned with the extreme nature of this legislation, as well as its failure to consider local forest management needs. The decision to employ even-aged forestry techniques on national forests -- including the use of clearcutting -- is best left to local forest professionals in accordance with national forest goals.

The simple point that I would like to make is that clear cutting is a tool that is occasionally needed to insure sound and healthy forests, both for the nation, and my state of California. To outlaw this forest management tool would have serious and detrimental effects on our national forests. Thank you.

STATEMENT OF ROBERT F. (BOB) SMITH
AGRICULTURE SUBCOMMITTEE ON SPECIALTY CROPS & NATURAL RESOURCES
HEARING ON H.R.1164
1302 LONGWORTH HOB
OCTOBER 28, 1993

MR. CHAIRMAN:

Humans have been on this continent for at least 15,000 years and have had a marked impact on ecosystems from the beginning. We cannot determine the extent man has altered the "native ecosystems". We only know that the ecosystems have changed and will continue to change no matter what man does.

The forests of the Pacific Northwest, prior to European settlement, were shaped by fire, wind, and other natural forces into a mosaic of even-aged forest stands. The so-called "climax" forest, where everything is presumed to be in natural balance, was a rarity.

The full range of biodiversity cannot be provided on every acre or in every forest stand. It can only be attained through a balanced mix of forest use and protection applied at the landscape or regional scale.

It is ironic that this bill intends to conserve native biodiversity and protect native ecosystems from the impacts of clearcutting, even though even-age management is a sound silvicultural tool that mimics the natural catastrophic events that formed the "native biodiversity".

Even-age management is utilized to restore and rehabilitate areas damaged by fires, windstorms, or other natural disasters. It is the most efficient and economical method to offset insect and disease problems, to regenerate shade-intolerant species, to accommodate utility lines and road corridors, and to create openings for wildlife.

The Forest Service and Bureau of Land Management have new policies in place that limit clearcutting to situations where it is the most environmentally effective method to meet specific management objectives.

Our federal land managers need the freedom and flexibility to use all scientifically sound tools, including even-aged management, to manage public forestland ecosystems.

I urge my colleagues to oppose this legislation.

Mr. VOLKMER. With that, we will begin with John and Wally. And your statements will be made a part of the record. You may either summarize or review the statement in full.

John, you can proceed.

STATEMENT OF HON. JOHN BRYANT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BRYANT. Thank you, Mr. Chairman. I once again thank you for scheduling today's hearing on the Forest Biodiversity and Clearcutting Prohibition Act, a bill which has now 77 cosponsors, and we are grateful for the opportunity to have a hearing on it.

Let me say, this bill does not deal with whether to harvest timber on Federal lands. It deals with how to harvest timber on Federal lands. It does not deal in any way with the harvesting of timber on private lands. It only deals with how best to harvest timber on Federal lands.

For some time, I have been concerned about the Forest Service practice of clearcutting in our national forests. It is a practice under which the Forest Service conducts even-age management on the vast majority of the 57 million acres of available commercial timberland in our national forests as well as in other federally owned forests.

Under even-aged management, loggers clear timber from sites, bulldoze the nonharvestable vegetation, scrape the soil bare, and replace the native biodiversity with a crop of commercial tree species. The result is that logging plantations replace the biological diversity of our native forests, eliminating habitat for our forest wildlife and destroy recreational opportunities.

Clearcutting and the devastation that results are not necessary for harvesting timber. Under the environmentally preferable selection management system, harvesters mark individual trees scattered throughout an area and cut them for sale or culling, leaving an ever-improving stand to regenerate new trees naturally in openings created by the cuts.

Selection management is used by private foresters, from coast to coast for economic reasons and to maintain a healthy natural forest. According to forester Bill Carroll, the Forest Service could abandon clearcutting and shift to the selection system within a few months.

In 1976, Congress passed the National Forest Management Act limiting clearcutting to situations when "it is determined to be the optimum method," and other even-age cuts limited to, when "appropriate."

The Forest Service has taken advantage of this discretionary language in the National Forest Management Act and continued rampant clearcutting and even-age cuts in most national forests.

The environmental evils of this practice, clearcutting, include soil losses several times worse than under selection management with nutrient losses sometimes 20 times as bad; sedimentation of streams, causing flooding and decimation of aquatic life; devastation of native biodiversity; drastic impairment of recreational values; increase of susceptibility to insects' diseases, and acid rain; blowdown of trees along the edges of clearcut sites, and within seed tree and shelterwood cuts; and worsening of the greenhouse effect

by reducing carbon storing woody biomass for years after logging takes place and by reducing the capacity of the soil to hold carbon.

Forest Service researchers have reported that selection management is more cost efficient and enjoys a higher benefit/cost ratio than even-aged management. That was reported in 1985 and in the Crossett study that came from Arkansas.

Interestingly enough, after this Forest Service study concluded that indeed selection management was a good system of managing our national forests, all of the studies along those lines from the Forest Service ceased. They didn't continue to conduct them; they didn't conduct them in other parts of the country or other types of forests.

This selection management system avoids the high cost of site preparation and planting and produces a higher quantity and quality of sawlogs.

Again, this legislation does not attempt to limit logging on Federal lands. The agencies managing Federal lands remain eligible to log as much timber under selection management as under the even-aged management system that is clearcutting, which they are doing now. There would be no negative impact on jobs dependent on Federal timber. And, according to expert testimony submitted by Dr. Thomas Power, chairman of the economics department at the University of Montana, which is included in my written statement submitted for the record, the provisions of H.R. 1164 banning roads and current roadless areas would have "minimal impact on jobs locally or nationally."

In June 1992, after the Agriculture Subcommittee on Forests, Family Farms, and Energy scheduled a hearing on the 1991 bill—very similar to the one before you at the present time—the Chief of the Forest Service, Dale Robertson, issued a directive to reduce clearcutting by 70 percent, at least that is what was told to us.

The Forest Service made a big fanfare over this purported response to public objections about clearcutting. But the fact is that the directive specifically permitted continued use of seed tree, shelterwood, and other variations of even-aged logging, which simply are two stage—a two-stage version of the same thing, clearcutting.

He labeled this ecosystem management. Well, I submit to you that anyone who takes an objective look at what has taken place since the order will see that there has not been a change of any significance. To be fair, here and there, some districts announced real changes; but they are a tiny fraction of true selection management.

I would also like to submit to the subcommittee the Forest Service's new policy of ecosystem management is simply something that sounds great on paper. The agency wants to avoid any reform with teeth in it.

We changed the law back in 1976 to provide that this type of management, clearcutting, was not to be used except in limited circumstances. They have managed to take that law and to interpret it in a way that permits them to do clearcutting as the first method and most common method of harvesting in our national forests today.

I would like to emphasize for those who are listening—I know the subcommittee members know this—but when we are talking about national forests, we are talking about forests owned by the public, owned by average Americans; and there is no question in anybody's mind, if you sit and talk with anyone even remotely involved with this issue, that the average person does not want to see us clearcutting our forests, that if people want to make money by going into the national forests owned by the public and harvesting logs, they should do it according to a system of management that is prescribed in such a way that is consistent with the public interest as well as the economic interest of the timber industry.

In recent decades, the Forest Service has depleted this country's biodiversity in nearly 70 percent of our Federal commercial timberland through various forms of even-age logging.

What remains of our vanishing forest biodiversity is mainly in our Federal forests, and most of that is in the remaining 30 percent of our Federal commercial timberland not yet turned into even-aged fields. Even if, by other measures, we preserve millions of acres of the Federal timberlands in the Pacific Northwest, only 7 of the 48 forest ecosystems found in our National Forest System will be protected.

Enactment of the bill before the committee would save examples of all existing forest ecosystems, of which there are 48 nationwide, almost seven times as many as would be served simply by dealing with the issue in the Northwest.

After 8 years of litigation, three environmental groups won a preliminary injunction against the Forest Service on May 12, 1993, to ban even-aged logging in the national forests in Texas.

Judge Robert Parker found that near-total even-aged practices were likely to impair key resources, in violation of the National Forest Management Act. Eleven citizen organizations, including major national environmental groups and grassroots groups, asked the U.S. Government in writing on June 23 to use this decision as a basis for banning or vastly reducing even-aged logging in national forests.

Unfortunately, the Forest Service and the Department of Justice chose to appeal the decision to prevent its application anywhere.

Since the introduction of this act in the 102d Congress, many Members have asked questions about the bill.

I think that perhaps I have used my allotted time, and I won't attempt to answer the questions in advance. I am simply saying this, Mr. Chairman, I believe you were present at that hearing. Many of the questions that were asked were unable to be answered simply because of the lack of time, as is the case in all hearings. They all can be answered. I am prepared to answer them all and look forward to an opportunity to do it.

And I thank you for the opportunity to testify.

Mr. VOLKMER. Thank you very much, John.

[The prepared statement of Mr. Bryant appears at the conclusion of the hearing.]

Mr. VOLKMER. Wally.

**STATEMENT OF HON. WALLY HERGER, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. HERGER. Thank you very much, Mr. Chairman.

Let me say, to begin with, there are no bigger and better things than this Agriculture Committee, which I served on for 6 years. Even though I am on another committee, I appreciate the opportunity to come back and join you and testify.

I appreciate your review of H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993. This legislation would have a great impact on my constituents in northern California. As many of you know, California's Second Congressional District, which I have the privilege of representing, is dominated by eight national forests. They include part or all of the Six Rivers, Tahoe, Shasta, Trinity, Klamath, Modoc, Lassen, and Plumas National Forests.

The abolition of even-aged management techniques that H.R. 1164 advocates would have a profound and detrimental effect on the future health of our national forests.

As you may know, the average clearcut on public lands in California is only 13 acres, even though by law it is allowable to clearcut up to 60 acres on Douglas-fir forest lands.

The forests of northern California are extremely susceptible to fire, disease, and infestation, due to its warm, dry climate. Without the ability to use even-aged management techniques, it is highly likely that our pristine forests in northern California would end up destroyed or irreparably damaged.

It is for this reason that I come before this subcommittee today in strong opposition to H.R. 1164. This legislation would severely limit the availability of even-aged management techniques which are essential to the maintenance of healthy forests and, therefore, would actually degrade our forests.

The fact is, clearcutting more effectively reproduces Douglas-fir and other shade intolerant species than other types of timber harvesting techniques. Thus, it is used to promote the healthy regeneration of these types of trees.

There are other instances where even-aged management techniques are necessary to protect the environment. Most importantly, the use of clearcutting is sometimes necessary to control or eradicate insects and diseases which can destroy entire forests if left unchecked.

Also, this management tool can be used to increase forage for wildlife in certain areas of the forest.

Mr. Chairman, the use of clearcutting on Federal lands has been substantially reduced in recent years and will continue to be further reduced under current law.

It should be pointed out that the Forest Service and BLM have come out on record opposed to an outright abolition of clearcutting.

Furthermore, the Society of American Foresters is also opposed to an abolition of clearcutting, saying in its official position, and "The Society believes clearcutting properly used has a role in forest management." The society goes on to further say that clearcutting should be applied under appropriate ecological conditions.

By opposing this legislation, no one is saying that there have never been abuses in clearcutting or other even-aged management

techniques. On the contrary, I have worked with both environmental and industry groups to reduce clearcutting on national forest land in my own northern California district.

However, a blanket prohibition will adversely impact the health of our forests by limiting the broad array of techniques necessary for proper forest management.

Mr. Chairman, I am afraid H.R. 1164 would do the exact opposite of what it is supposed to accomplish. Instead of promoting biodiversity in our national forests, H.R. 1164 would lead to fires and diseases running rampant through these beautiful lands. Clearly, nobody here today wants this to happen.

Therefore, I urge this subcommittee to do what is best for the health of our forests and reject this well-intentioned but misguided legislation.

Thank you.

[The prepared statement of Mr. Herger appears at the conclusion of the hearing.]

Mr. VOLKMER. Thank you very much.

I don't have any questions for the witnesses.

Do any members have any questions for the witnesses?

Mr. BISHOP. I do, Mr. Chairman.

Mr. VOLKMER. The gentleman from Georgia.

Mr. BISHOP. Thank you very much. I just have a couple of questions about the bill.

First, Mr. Bryant and Mr. Herger, it is my understanding that the remedies that are allowed under the bill would give a cause of action to any citizen for an injunction or declaratory judgment or appropriate relief, but that the venue would lie in any U.S. district court.

Is that accurate information? Or is that incorrect?

Mr. BRYANT. The doctrine of forum non conveniens would apply even if you filed it in another part of the country.

In other words, the court would have to place the case in a location in which one of the parties resided or there was some connection between where the parties lived and worked and the location of the court.

So it is not going to be a significant change.

Mr. BISHOP. That would fall under 42 U.S.C. section 1343?

Mr. BRYANT. You are better than me. I don't know. I can't remember.

Mr. BISHOP. The general venue statutes you are not attempting to change, you are talking about jurisdiction in a district court and not just that the cause of action in terms of venue will be brought anywhere? You are not trying to change the procedural?

Mr. BRYANT. That is correct.

Mr. BISHOP. Thank you. That is the first question.

The second question has to do with the effect the bill would have on fire protection measures that are utilized in our national forests to control forest fires, particularly in the West.

What impact would this bill have on the fire retardant measures?

Mr. BRYANT. It would not have any impact. Obviously, if you clearcut an area, there is nothing to burn there.

Mr. BISHOP. I am sorry?

Mr. BRYANT. Obviously, if an area has been clearcut, there is nothing to burn there. But it would not have any impact on fire retardant measures.

Basically, the bill says, instead of going out and cutting down a vast area of timber, scraping the ground bare, and replanting a single species, that you must go in and select the trees one by one and take them out, leaving a forest behind.

Mr. BISHOP. I understand that as a concept, but are there not situations in forest management—and I certainly support the noble objectives of the bill to preserve the forests to the extent that we can; it is a precious resource. But in terms of trying to preserve the overall forest by making sure that there is a gap in combustible growth, wouldn't it be necessary—isn't that a measure that our forest rangers utilize and our conservation service utilizes to try to protect the overall forest from destruction by forest fires?

Mr. BRYANT. This bill would not prohibit any current forest fire prevention method that is being used at the present time, as I understand it.

Mr. HERGER. Mr. Bishop, if I could respond to that, too.

Just speaking about our northern California forests—and, again, I represent parts or all of the eight national forests, a large area of northern California, which is really unique to Oregon and Washington in that we have a dryer forest. We have just concluded 6 years of drought in our area.

What happens when you do not have the moisture, do you not have the sap coming up through the trees, the insects will tend to get into the trees, begin—you will get these insect infestations. And without our current practice—and remember, in all of California, our average clearcut is only 13 acres. And it is getting less all the time.

But unless we have the ability to go into an area where maybe there are several acres that have been infected and where we have dead trees and take those trees out, what happens is that these insects spread and begin killing healthy trees that normally would have lived, and as it grows, that becomes very susceptible to forest fires.

In 1987, in my district alone, we had a forest fire that burned over—there were several fires that burned over 400,000 acres of land. That is a real clearcut. And what we want to do is help protect that. We are really looking to the forest health, which in my opinion and the opinion of many is very much hampered by this piece of legislation.

Mr. BRYANT. Could I make the point that the catastrophe—

Mr. BISHOP. Could I just follow up, and then I would be happy for you to make your point.

From what I understand you to be saying, Mr. Herger, is that it will reduce the flexibility needed to control the destruction of the forest?

Mr. HERGER. That is exactly right. And, again, we are using less and less of the clearcutting, more and more of the selective cut, the fact that again only an average of 13 acres; and that is coming down.

But we need that flexibility, as you are pointing out, to be able to go in in certain instances for the health of the forests to be able

to go in and maybe take out an area that has been diseased so that it does not, in turn, kill off a much larger area of that forest.

Mr. BISHOP. I don't want to give the wrong impression. I do strongly support the objectives of the bill in preserving our environment and the ecological benefits that will come from not clearcutting.

But at the same time, I just want to make sure that I understand fully the necessary balance in terms of managing, controlling disease, and controlling the combustion opportunities if there is no clearcutting in certain instances, that is carefully managed.

Mr. HERGER. And under this legislation, if there were—which is very common in our area, and particularly after 6 years of drought, you may have 5, 6, 7 acres of area that are dead trees.

Under this legislation, we would be unable to go in and remove those so as to remove this problem of infecting further into—

Mr. BISHOP. Could there be safeguards put in the bill to allow the removal of only dead trees but not—

Mr. BRYANT. That is already permitted under the terms of the bill. It is permitted as the bill stands. But if it was necessary to make it more clear, that would be fine as well.

I think it is really important to penetrate the circular reasoning that usually is used to defend the status quo in any area. It is being used here as well.

Mr. Herger said that they had a catastrophic fire in which 400,000 acres burned. Well, the status quo is what he is arguing for. And the status quo is what they had when the fire took place. So it is very difficult to argue that whatever is good about the status quo is helping preserve his forests.

Second, this idea that you can sit here and say here—as I am sure the witnesses from the Forest Service will say as well—that there is nothing wrong with clearcutting but then boast that we are reducing clearcutting. I mean is it good or is it bad? Why are they reducing it?

Well, in fact, they are not reducing it. They are pretending to reduce it, as I said in my statement. Right before the hearing last year, they announced that they were going to begin to reduce clearcutting. But the history of what they have done with a very few examples is they have just gone to seed tree and shelterwood cuts, which is just another form of clearcut. It is a two-stage clearcut as opposed to a one-stage clearcut.

Mr. BISHOP. Let me understand, Mr. Bryant. Are you suggesting, then, that under no circumstances should clearcutting be allowed for fire prevention or for the removal of diseased trees which would be more subject to combustion and fire?

Mr. BRYANT. Clearcutting is not necessary—the removal of the diseased trees or dead trees is permitted under the terms of this bill. You don't need to clearcut in order to do that. There would be no reason to remove all the living trees as well. So that is the whole point. The argument that they must completely devastate an area in order to get to a few diseased trees or a few dead ones is the very thing we are arguing against.

Mr. BISHOP. Would you not think it would be appropriate then to have some test such as if a certain percentage of trees in a certain geographical area were found to be diseased, then that would

authorize clearcutting, whereas in other instances, if it doesn't reach that threshold, then it would not be appropriate?

Mr. BRYANT. In 1976, everyone thought that was appropriate. Sounded very reasonable.

What happened, the Forest Service uses it as an excuse to clearcut everywhere. They even try to clearcut in the wilderness areas that are protected on the strength of that kind of logic.

The fact of the matter is that that method makes the forest weaker in terms of its biodiversity and in terms of its susceptibility to insect infestations and everything, forest fires and everything else, because it gives you a much less strong and healthy forest.

That is the whole point of the bill. It is wiser not to clearcut, it is wiser to do selection management, from all perspectives.

Mr. BISHOP. Thank you, Mr. Chairman.

Mr. VOLKMER. Thank you.

The gentleman from Georgia.

Mr. KINGSTON. Thank you, Mr. Chairman. I have a couple of questions.

First of all, one of the criticisms that I read about, that is that selective harvesting of trees will require that more roads are built into existing forests. And I have seen forests that have had selective cuts, and I know that a lot of roads have to be built as a result of that, which also leads to erosion and, in fact, may lead to more erosion than clearcutting since roads are one of the biggest causes of actual erosion and water pollution.

How would you respond to that? Either one or both, I would leave it up to you.

Mr. BRYANT. Well, first of all, again, it is another clever, in my view, rhetorical maneuver on behalf of the Forest Service to make this claim.

I must say I speak with a certain amount of—I have sort of given up on attempting to speak reasonably about their actions in this area. They are the world champion roadbuilders. Every time we have attempted to slow down roadbuilding in any area, they have worked very hard to prevent it.

So it is very hard to take with a straight face. Their claim is: A, this is going to cause more roadbuilding, as though they are opposed to more roadbuilding; B, it is not going to cause more roadbuilding; and, C, the bill specifically prohibits them from using this as an excuse to build more roads.

Mr. HERGER. Mr. Kingston, let me just mention that we are moving away from clearcutting. There was a day, two, three, decades ago, you would see clearcutting on hundreds of acres, even thousand of acres. That does not exist any more. It certainly does not exist in the State of California.

Again, we are talking about an average clearcut of 13 acres. That is the average. And to remove this as a tool to be able to use in wise forest management, I think, is not prudent. There are other reasons that, in instances, we clearcut. There are certain tree species, Douglas-fir, that will only grow if it is open to sunlight.

Now we have several ways to create a clearcut. One of the ways nature creates a clearcut is big forest fires will go through. That creates a clearcut. Douglas-fir can begin. And most of us would agree that we don't want to see at least the out-of-control wildfires

that we are currently seeing in southern California to exist. So we need to be able to manage it.

Mr. Bryant indicated that, gee, it is not working right; we lost 400,000 acres back in 1987; therefore, we need to make changes. I am not here defending the Forest Service. Perhaps if we had been out there taking out these dead and dying trees in areas we should have, perhaps, those forest fires would not have been nearly as severe as they were.

The point is, we need to be managing our forests better. Virtually everyone who is trained in this area agrees that we should not remove that as a tool.

Mr. KINGSTON. I am listening, Mr. Herger. I had a couple of questions. I only have a few minutes. I am sorry to cut you off.

The other question I had, though, is that the forestry service counts on the revenue for clearcutting. And since this would reduce their revenues, then it would be something that, under the Reconciliation Act, they would have to have an offset on.

And I was wondering if there is a provision, Mr. Bryant, in the bill for the offset for the budget?

Mr. BRYANT. It would not reduce their revenues. In fact, this is the most wasteful method of foresting that there is. It would not reduce the revenues.

Mr. KINGSTON. So then that is the Forestry Department's position?

Mr. BRYANT. Mr. Kingston, having worked in this for a very long time, I am in danger of appearing to be intemperate in my remarks about the Forest Service.

I can only say to you that when they come to this subcommittee and this Congress and say year after year after year is so often inaccurate, that it doesn't make any difference what they come over here and say because it is not going to be correct.

Mr. Herger has said just a moment ago that the average clearcut is 13 acres.

Mr. HERGER. In California.

Mr. BRYANT. In California. I don't know anything about that figure, and I don't intend to dispute anything Mr. Herger says in good faith at all, because I know he speaks from what he believes.

Mr. HERGER. And that is a fact, Mr. Bryant. Thirteen acres is the average clearcut.

Mr. BRYANT. I understand that. I am not quarreling with your view of the facts.

I would simply say this: I would urge this subcommittee after this hearing is over to examine that figure and find out how it was calculated. I would be willing to bet in advance, not knowing anything about it, that it is another ridiculous manipulation of statistics by counting things in which they just cut one-half an acre here, a one-quarter of an acre there, and adding those in with large clearcuts to make a low average.

Mr. KINGSTON. Let me ask you about this offset. It comes from CBO and not just from the Forest Service.

Mr. BRYANT. I simply say to you that it is not going to cost us any money.

Mr. KINGSTON. One other question. Thank you, Mr. Chairman.

Biodiversity, I understand that the spotted owl, and the gray field mouse does better in a clearcut area that has been growing back. And I know that that may or may not be accurate, depending on which side of the fence you are on, but I do know that in many cases that there is biodiversity brought about by clearcutting. And so you can take that position either way.

I was just wondering if either one of you would like to comment.

Mr. BRYANT. Yes. Again, it is circular reasoning that attends every argument in favor of the status quo. I mean certainly it is counter intuitive to believe that a multiacred area that is bare of vegetation enhances biodiversity. I mean, it is preposterous.

Surely anyone who examined this situation and applied common sense to it or listened to the experts that are going to come behind me would recognize that if you do a selection management cut, leaving behind as much of the forest that you can, that would be much better for biodiversity than a bare mud plain.rose

Mr. ROSE [assuming chair]. Thank you all very much.

Mr. VOLKMER. Mr. Chairman.

Mr. ROSE. Yes, sir.

Mr. VOLKMER. I passed before. I would like to ask a question.

John, if I read your bill correctly, you would say there would be no clearcutting in any national forests anywhere in the United States. Is that correct?

Mr. BRYANT. That is right.

Mr. VOLKMER. Even in those areas where clearcutting is the only appropriate method of regeneration of the national forest and the ecosystem and the biodiversity?

Mr. BRYANT. I would not acknowledge that there are situations like that. But even if there were—and we could write this bill in such a way as to leave flexibility—the danger is we were faced before with the same thing we had in 1976. This Congress did in 1976 what would appear to be reasonable, giving them a lot of latitude.

And you would assume that they are going to manage the national forests in a fashion that is in the public interest, not in the interest just of people who harvest timber.

That is not what they did. They turned clearcutting into the only method being used to harvest timber. So it is very difficult to argue in favor of writing flexibility into this bill.

Mr. VOLKMER. The next question, then, I would like to ask concerns the overall aspects of the legislation as it relates to timber harvesting in conjunction with the other laws that we have on the books in regard to timber harvesting.

You have mentioned that there is a provision in here that you are going to not permit any roads in any other areas in which there are not roads already. Correct?

Mr. BRYANT. No. In areas that were designated as roadless areas.

Mr. VOLKMER. Roadless areas. No more additional roads?

Mr. BRYANT. That is right.

Mr. VOLKMER. So that area is off?

Mr. BRYANT. That is correct.

Mr. VOLKMER. The only cutting which is now permitted is those areas which are apparently roaded areas. And it is only by selective cutting. Correct?

Mr. BRYANT. That is correct.

Mr. VOLKMER. Now, we also have a provision in the law pertaining to below cost sales. And there are those who are pushing that there not be any below cost sales. Correct? I think you take that position.

Mr. BRYANT. I do. Yes.

Mr. VOLKMER. Now, if you add this bill to the below cost, what you are doing is almost putting all sales below cost.

Mr. BRYANT. Well, that is your position. I wouldn't agree with that position.

Mr. VOLKMER. All right.

Thank you, Mr. Chairman.

Mr. ROSE. Thank you, sir.

Everybody, I am sorry I was late.

Mr. Smith of Oregon.

Mr. SMITH of Oregon. Mr. Chairman, thank you very much. I would be happy to yield to the gentleman.

Mr. WILLIAMS of Montana. Go ahead.

Mr. SMITH of Oregon. I just have one question, Mr. Chairman.

Mr. Bryant, do you believe in even-aged management of timber?

Mr. BRYANT. Do I?

Mr. SMITH of Oregon. Yes.

Mr. BRYANT. No.

Mr. SMITH of Oregon. You do not?

Mr. BRYANT. Do not.

Mr. SMITH of Oregon. Do you believe in uneven-aged management?

Mr. BRYANT. I think selection management is a more prudent way to manage our resources.

Mr. SMITH of Oregon. I think—and that is consistent. And I think this argument really is about what is best for the management of timber and what is best for—on behalf of silviculturists and how you can regenerate a forest using only the uneven-aged method of silviculture.

Because in the Pacific Northwest as you may know, especially on the western side of the Cascade Range, to use uneven-aged management is practically and certainly economically impossible.

My point is simply, now you are consistent. If you eliminate one tool of management, that is clearcutting, you indeed do not believe in even-aged management.

Mr. BRYANT. Let me respond by saying that selection management, as a method of managing forest lands, takes place in every area of the United States on private lands now. This bill only affects what goes on on Federal lands. And there is no reason why we can't accomplish, on Federal lands, what is done on private lands.

I think that the specific geographical questions about what is possible are better directed at the experts that know more than I do about it and who will be here today.

But my understanding is there is no area of our country where it is not being done right now on private lands. And I am simply saying, let's be as smart as they are and do that on Federal lands.

Mr. SMITH of Oregon. Well, there are areas in our country where it is not being done simply because it is not good practice. And I think this ought to be couched, frankly, on what is best for the forest, what is best for regeneration, what is best for the future forests. That is what we all want. And I know you do, too.

Mr. BRYANT. Perhaps. And biodiversity, which I think is a valuable asset for us to retain.

Mr. SMITH of Oregon. Exactly. And part of biodiversity, you must know, and ecomanagement has to do with even-aged management. They are hand in hand. They cannot be separated.

Thank you.

Mr. VOLKMER. Would the gentleman yield for just a minute?

John, are you telling me that there are private forests that are not clearcut?

Mr. BRYANT. No. I said that there are private forests all over the United States that are managed with the selection management method because they believe it is more economical to do so. And it is much better in terms of the immediate profit and much better in terms of the long-term health of their stand, which they want to continue to harvest in the future.

Mr. VOLKMER. What about those where they do clearcut and they find that it is more economical, does it promote diversity?

Mr. BRYANT. I would just disagree with their practice. I am just pointing out that there is no area of the country where they are not using selection management now. It could be used on our land.

Again, I am arguing this is how we should manage the land that the public owns, that you and I are the trustee of. That is the whole point of the bill.

Mr. ROSE. Any other questions?

Mr. WILLIAMS of Montana. Mr. Chairman.

Mr. ROSE. All right, sir.

REMARKS OF HON. PAT WILLIAMS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MONTANA

Mr. WILLIAMS of Montana. Mr. Chairman, I appreciate as a nonmember of the subcommittee, being allowed to come by. I even see here on the witness list my name as one of the witnesses. I did not intend to testify, but simply to be here.

John, I went from an early opponent of your legislation—or at least one who had great concern about your legislation, to each year coming closer and closer to being a cosponsor with you. I am here today because, as you know, I represent Montana, all of it now; and Montanans stop me increasingly on the street, in the barber shops, and say, Pat, the clearcutting has to stop.

Now, primarily they are talking about clearcutting on the private lands which you can't affect. But clearcutting in Montana in the 1980's, as well as prior to that, went on in a fashion that raises serious questions about its value to ecosystem management.

I talked to two astronauts and I said: "What did you see when you flew over Montana?" They said: "The squares of your

clearcuts." Now, I suppose from the air that is what you would see. But it is interesting what we have done as a people, isn't it?

I have supported, in my 15 years as a Representative from Montana, the prerogatives of the professional foresters. They have terrible conflicts and competing demands with which to deal. In the past 20 years, because the Montana congressional delegation has failed to resolve the Rare II dilemma in our State, private companies have been forced more and more to cut on their own land because we can't get the Federal land released to them.

And when we did, as a Montana delegation, come up with legislation to resolve Rare II in the Montana wilderness bill and passed it down to President Reagan, he, for the first time of any President, vetoed a Rare II wilderness bill. He did so to elect a now sitting U.S. Senator, who successfully achieved that in what was really the most cynical political act with regard to the environment that I have seen since my time in the Congress.

That act has meant that the private companies go more and more on to their own land. And we have had instances now where forest supervisors in Montana have had to pull out Federal land, even that land that could be cut, because of the enormous damage that is being done on the adjacent private land through clearcutting by private timber companies in Montana.

I tell my friend, Mr. Herger, that using your words, that cutting on private lands adjacent to Federal lands has created, using your words, a profound and detrimental effect on the forests of Montana.

You see, here is the dilemma, and this is why Mr. Bryant might be on to something when it comes to places like Montana. The rain shadow doesn't work in our favor. Our trees are small. There are a lot of them, but they are small. And economies in this society of ours almost dictate clearcutting by the companies in order to get enough volume out.

And so whether you fly over Montana in a small plane, as I do every weekend, or as an astronaut, you begin to see the size and the magnitude of the clearcut problem.

We have just had a company who virtually liquidated, a timber deposit, virtually liquidated its own lands in Montana and are now leaving. I question that those people are foresters. I think they are barbers. That has to stop. That practice has to stop.

I am not sure, John, that your bill is precisely the way to get at it.

But I come here this morning, Mr. Chairman—and, again, thank you for letting me join a committee of which I am not a member. I come here this morning as a Montanan to say that I think this Congress and the people of the United States should pay more attention to what many professional foresters, many economists, and John Bryant are saying. I don't think we are paying enough attention to what they are saying.

Whether you are an astronaut or not, you can pretty quickly go around the forests of Montana and see the damage that has been done by clearcutting.

And I thank the gentleman for his patience in continuing to bring this issue.

Mr. VOLKMER. Would the gentleman yield?

Mr. WILLIAMS of Montana. Be glad to.

Mr. VOLKMER. The clearcutting is on private land?

Mr. WILLIAMS of Montana. Not all of it, by any means.

Mr. VOLKMER. But the great majority of it is?

Mr. WILLIAMS of Montana. A significant percentage of it is.

Mr. HERGER. I would like to respond to that as well, if I could.

In the State of California, over 50 percent of our land area—and even more than that in our forest area—is owned by the Federal Government.

I would gather in your State of Montana is 75, 80 percent. You know much better than I.

Two years ago, our forester for all of California indicated that, at that time, 2 years ago, 75 to 85 percent of all the Federal forest lands were completely off limits to any kind of harvesting, which meant, just on the part that we could harvest, the part of the pie was 20 to 25 percent, which has just about been shut down today.

What that does, I think as you are pointing out, Mr. Williams, is put more pressure on the private land. And if we could go in and more wisely be managing for our environment, managing in areas that are prudent of our Federal lands, we would not have nearly the pressure for wood products to build our homes that our children and grandchildren, your constituents, my constituents, we look around this room here, that require; and we would be able to manage all of it better if we didn't have those unrealistic, outrageous type of handicap on Federal lands now.

And this will make it even worse, a situation that is already horrendous.

Mr. WILLIAMS of Montana. Well, I have said, Mr. Herger, and quickly repeat, that part of the problem on the private land has been the Reagan veto on the delegation's inability since to get the Federal lands released by passing the Rare II bill, Montana wilderness bill.

I recognize fully, and in my statement here, said that the pressure on the—because we can't get at Federal lands in Montana, the pressure on the private lands is severe. That does not mean, however, that when the pressure goes off of the private lands the same type of clearcutting practices should be allowed on Federal lands. I know they are not. I know that is not the case.

There is another point to make here. And that is that—I am speaking for this eastern part of the Pacific Northwest that has slow growth, short growing seasons, rain shadow doesn't work in our favor. And the point I am trying to get across with that is this: The economics of the situation in places like Montana in the bulls eye of clearcutting. Because if you are going to get out enough volume to make a few bucks, you clearcut.

And so my constituents have become terrified by what they see as the fact that economics requires clearcutting in that State.

Mr. ROSE. Thank you.

I want to thank all of you.

Mr. HERGER. Could I just—

Mr. ROSE. But we have 16 other witnesses. You talk as long as you want, if you agree to stay and hear all 16 witnesses. But go ahead and make your comment, John.

Mr. HERGER. I am ready to conclude, Mr. Chairman.

Mr. BRYANT. That is a dangerous offer, Mr. Chairman. I might want to do that.

I just want to say one thing. I went up to Montana to go deer hunting and elk hunting. And we were in the Lolo National Forest on horseback, went around the mountainside, and across the valley was the most horrendous clearcut I have seen in my life. It was the entire mountain side. That guide was leading hunting parties on that mountain only a couple years before that. He couldn't do that any more, nor could the other guides in the region.

Clearcutting has a lot of impact on a lot of people besides folks in the timber business.

Thank you very much.

Mr. ROSE. Thank you all, very much. Mr. Bryant, Mr. Herger, and Mr. Williams, thank you.

Our second panel is Mr. David Unger, Associate Deputy Chief for National Forest Systems, USDA, Washington, U.S. Department of Forest Service; and David Loftis, Research Scientist, Hardwood Management, U.S. Forest Service, Southeast Experiment Station, Asheville, North Carolina.

Now, gentlemen, we—you all have a slide presentation?

Mr. UNGER. No, sir.

Mr. ROSE. If you'll condense your testimony to the salient points, we will buy you lunch.

Mr. UNGER. We will certainly do our best.

Mr. ROSE. I am not saying where.

**STATEMENT OF DAVID G. UNGER, ASSOCIATE DEPUTY CHIEF,
FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, AC-
COMPANIED BY DAVID LOFTIS, RESEARCH SCIENTIST,
SOUTHEASTERN FOREST EXPERIMENT STATION**

Mr. UNGER. We will certainly try to be expeditious, Mr. Chairman.

I would like to read parts of my statement and summarize the rest, if the entire statement can be included in the record.

I am accompanied by Dr. David Loftis, who is a Research Scientist at our Southeastern Forest Experiment Station.

Although the Department of Agriculture cannot support enactment of H.R. 1164, we do support the concept that native biodiversity and ecosystems should be protected. As I think everybody here knows, the National Forest Management Act already requires the Forest Service to provide for the diversity of plant and animal communities based on sustainability and capability of the specific land area and consistent with management objectives of the area.

I believe we are the only Federal agency that does have that specific requirement.

One of the goals of our current commitment to ecosystem management in the Forest Service is to ensure that native biodiversity and ecosystems are maintained or enhanced on National Forest System lands.

I would like to say that, as we discuss the provisions of this bill, that biodiversity is not a specific condition that can be defined and put into place permanently. Indeed, it is a dynamic series of condi-

tions that exist over time and space, a constantly changing and evolving assemblage and distribution of organisms.

The objective of our ecosystem management approach—and I do believe, Mr. Chairman, that our commitment to ecosystem management is a significant development in the way in which the Forest Service intends to do its business now and in the future—is to combine the best available physical, biological, social, cultural, and economic knowledge, and the public's views to determine how the Nation's national forests shall be managed.

I would like to turn to several concerns that we have with certain provisions of this legislation.

First, as has been made clear this morning, the bill places severe restraints upon clearcutting and other even-aged management practices.

We support elimination of the use of clearcutting as a standard harvest practice and have made substantial progress in reducing that use. I should mention that since 1988, when the Chief announced his intention to reduce clearcutting as a standard harvest practice, we have reduced the use of clearcutting on sales that have been put up for sale by some 70 percent.

In terms of acreage harvested in 1989, by clearcutting, amounted to 33 percent of the total. That number has fallen to 20 percent of the total of acres harvested last year so substantial progress is being made, and more is on the way.

However, we believe a prohibition on all even-aged harvest practices is contrary to the goal of protecting native biodiversity. Many naturally occurring ecosystems have been greatly influenced by natural disturbances such as wildfire, insects, and disease outbreaks which create even-aged forests.

These forests are an important component of the ecosystem and can be emulated through even-aged management practices to maintain biodiversity and other objectives. For example, there are many wildlife species such as wild turkey and ruffed grouse whose habitat require even-aged management to maintain optimum population levels.

We believe that to practice ecosystem management and to conserve native biodiversity, managers need all the tools available, including even-aged management practices. There is no single management prescription that is best for any one geographic region or vegetation type, and we do not support changing our management authorities without credible scientific research to restrict options for maintaining biodiversity.

Let me mention briefly a number of other concerns. We are concerned about the provision that would narrow the criteria for membership on the committee of scientists that would provide advice on proposed guidelines and procedures. Rather than having such restrictions on the qualifications of the committee that would exclude a great number of eminent scientists, we would rather focus our efforts on bringing user groups and scientists together to help gain consensus on implementing ecosystem management on our lands.

The bill would also require the Secretary to prescribe a shift to individual tree selection management on sites already under even-aged management. These requirements would result in reducing the volume of timber available for harvest.

We are also concerned with the civil penalty enforcement provisions of the bill which would waive the sovereign immunity of the United States in all respects and all actions. This could subject Forest Service officers and employees to liability in their individual capacities.

Another provision we believe is unclear in the bill in terms of payment of civil penalties, and we have provided some information of our concerns there.

Finally, the bill's prohibition against construction or reconstruction of roads in roadless areas could be limiting. We believe the forest planning process or specific wilderness legislation would be a more efficient means of determining how roadless areas should be allocated.

To summarize, we will continue to reduce the use of clearcutting and ensure that it is used only to meet specific ecological objectives.

However, a prohibition of clearcutting and other even-aged management methods would not be responsible forest management and would limit our ability to input ecosystem management on our lands.

That concludes our statement, Mr. Chairman. We would be happy to respond to questions.

[The prepared statement of Mr. Unger appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much.

Mr. Volkmer.

Mr. VOLKMER. I appreciate your testimony, Mr. Unger. And I didn't want to get into further discussions with the sponsor of the bill because, in my opinion I don't know if he has really read his bill. I liked the point he was asked about salvage removal.

Have you reviewed this bill in detail?

Mr. UNGER. I have reviewed it and so has Dr. Loftis.

Mr. VOLKMER. Let me ask you how you interpret—see if you interpret the same way that I do. It not only says "shall prohibit any even-aged logging," but it says "any even-aged management."

Then he defines, on page 11, on one act and later on another act, on another page, even-aged management means the growing of commercial timber so that all trees in a patch or stand are generally within 10 years of the same age.

Now we have fires out there, destroy whole stands. If I read this right, you couldn't replant, except part of it, every 10 years.

You agree or disagree?

Mr. UNGER. I am going to ask Dr. Loftis to respond to that.

Mr. LOFTIS. That would be my interpretation.

Mr. VOLKMER. So you have to plant part of it now and part of it 10 years later and part of it another 10 years. Correct?

Mr. LOFTIS. Yes, sir.

Mr. VOLKMER. To get an uneven stand.

Then it says in that same paragraph—"except for designated leave trees or clumps of trees, a patch of stand is logged completely in any acre within a period of 30 years by clearcutting, salvage logging, seed tree cutting, or shelterwood cutting or any system other than selected management."

He specifically says salvage logging is prohibited. That is within a period of 30 years. If you cleared all that salvage off, you have to have it in less than 30 years is how I read it.

Mr. UNGER. We believe there are questions about how salvage logging could occur under the provisions of this bill.

Mr. VOLKMER. There is no other provision in here, except the definition of salvage logging, but no other provision in here.

How does aspen regenerate in Minnesota and Wisconsin? How does aspen regenerate?

Mr. LOFTIS. Aspen regenerates primarily by root suckering or vegetative structures. And in general it is considered to be a very shade intolerant species that requires a very open condition that might be associated with——

Mr. VOLKMER. What is the most optimum way of regeneration of aspen?

Mr. LOFTIS. The conventional wisdom is that clearcutting or large patch cutting is the most appropriate method of regenerating aspen.

Mr. VOLKMER. And do you not also need the sprouts, et cetera, for biodiversity for animals, et cetera, in those areas?

Mr. LOFTIS. Certainly some——

Mr. VOLKMER. Wisconsin and Minnesota and those areas?

Mr. LOFTIS. Certainly there are some species that certainly do require——

Mr. VOLKMER. Actually require it.

And if you didn't have anything but big stands and never cut the aspens, your biodiversity and your ecology is actually going to be detrimental, unless you start some fires and burn some trees or a fire comes naturally.

Is that not correct?

You look at the total ecosystem, and if you prevented all fires in there and never had any removal, wouldn't you be changing the ecosystem of that forest from what the nature is?

Mr. LOFTIS. Certainly in the West—in western forests in the United States where aspen is a significant component, one of the real concerns is the loss of aspen and the need to take specific remedial measures to ensure that it is regenerated and is maintained as part of the ecosystem.

Mr. VOLKMER. Now, Mr. Unger, you pointed out in your statement—I reviewed your statement and listened to it—if we went to nothing but selective cutting but yet did not reduce the number of personnel that we have in the Forest Service in our national forests, what happens as a, I would say vast, majority, maybe not all, but a vast majority, especially in the Eastern United States of sales?

Mr. UNGER. What would happen to the number of sales?

Mr. VOLKMER. As far as relation to below cost.

Mr. UNGER. Certainly there would be additional costs of sale preparation if this legislation were adopted. And we eliminated all even-aged planning and harvesting of timber sales.

On the other hand, if we were to try to achieve the same volume that we have presently scheduled for harvest in our plans, we would have to go to a larger number of acres.

Mr. VOLKMER. But in order to do that, you probably have to build some roads in that area.

Mr. UNGER. Well, it certainly is true that in using selective harvest systems, ordinarily they have to be entered—the stands need to be entered more often and at a greater intensity. So there is likely to be, under those circumstances, greater roadbuilding.

Mr. VOLKMER. I have another question in regard, basically, to the need for legislation.

Under present law, does not the Secretary, indirectly the Chief, have the power to say there is not going to be any clearcutting anywhere in the United States right now?

Mr. UNGER. Certainly that authority exists, and as I have indicated, the Chief has already issued direction to——

Mr. VOLKMER. That has been reduced?

Mr. UNGER. The use of clearcutting as a standard harvest method and it has been reduced.

Mr. VOLKMER. Considerably reduced?

Mr. UNGER. That is correct.

Mr. VOLKMER. And in addition to that, the size of the clearcuts have been reduced. Is that correct?

Mr. UNGER. We have a basic limit on 40 acres in policy for the maximum size of clearcuts that can be exceeded in some cases if the regional forester determines that it is necessary.

In the southern Appalachian area—I was just asking Dr. Loftis this earlier—the average size of clearcuts is probably around 25 acres in size.

Mr. VOLKMER. They are not these huge things that we see up in Montana?

Mr. UNGER. They are not the large clearcuts that sometimes occur on private lands, that is correct.

Mr. VOLKMER. Well, where you see maybe one-quarter of mile or even 1-mile wide clearcut?

Mr. UNGER. That is right.

Mr. VOLKMER. Those don't occur in our national forests?

Mr. UNGER. That is correct.

Mr. VOLKMER. And so when people talk a lot about clearcuts that they have seen from airplanes, clearcuts that they don't like to see because it is not pretty to the eye to some people, basically they are talking like if you see them from up there in space, you are seeing those big cuts?

Mr. UNGER. I would think that that would be the case.

Mr. VOLKMER. Now, in the past there has been—because as former chairman of the subcommittee, I know, I have worked with the previous administration, and I talked to Mr. Lyons concerning this matter, concerning below costs. And I know that he is working to reduce the necessity of both of those as we proceed.

But I don't think that either he nor anyone that I know of would say that clearcutting is never appropriate in our national forests.

Mr. UNGER. I agree.

Mr. VOLKMER. And I think that those who espouse it are what I call radical. That is mine, not yours. It is a very radical approach to our national forests. It is not recognizing even that, in instances, clearcutting is appropriate, that specific instance, and it is inappro-

priate in others, no question about that. There are other places it is inappropriate. It is not appropriate at all times.

But it is just as radical for me to say it is my opinion that clearcutting is good everywhere, as to say clearcutting is not good anywhere. One side is a radical approach; the other is on the other side, in my opinion. That is where I come from.

I have no further questions.

Does the gentleman from California have any questions?

Mr. DOOLITTLE. Thank you, Mr. Chairman.

How is clearcutting beneficial in some instances?

Mr. UNGER. It is beneficial in some instances where it mimics the natural processes that might have occurred that have affected the formation of the forest, such as windstorms, fire, creating openings that favor certain wildlife species or that favor the regeneration of the desired kinds of trees and other vegetation.

Mr. DOOLITTLE. I think, as the gentleman brought out earlier, certain species require a larger area—don't they—for sunlight and so forth, to get started again?

Mr. UNGER. That is true.

Mr. DOOLITTLE. So would you feel it inappropriate to tarnish clearcutting as an across-the-board—I mean do you feel that clearcutting has some beneficial purposes in the right circumstances?

Mr. UNGER. We do. We feel that all harvest methods that have been identified over time by the professional foresters have application in certain circumstances and achieving certain objectives.

We would be as concerned today if it were being proposed to eliminate various forms of selection cutting on a national basis as we are the proposal to eliminate even-aged management technique.

Mr. DOOLITTLE. What, if you had to give a percentage, how often would you say clearcutting is used nationally? I guess we would be talking about on the public lands, used nationally as a percentage, say, of the total number of areas that are managed?

Mr. UNGER. The best figures I have with me today are the ones I quoted earlier. We can provide additional ones for the record if you choose.

But of the number of acres that were harvested in 1989, about one-third of them were harvested using clearcutting techniques. That fell to 20 percent last year, of the acres harvested.

Mr. DOOLITTLE. So it dropped one-third to 20 percent. Do you feel it would do injury to the proper management of our forest resources were this bill to be passed and clearcutting eliminated?

Mr. UNGER. We feel that the professional forest managers should have the full complement of tools to deal with the management of the forests and that this is becoming even more important as we take this broader ecosystem management approach that we discussed.

Mr. DOOLITTLE. Now, you are being very diplomatic, but I am trying to get the essence of this.

Is the passage of this bill likely to harm the forests as you understand the term with all your management techniques if we don't have clearcutting as a tool?

Mr. UNGER. As I indicated in my statement, we are opposed to this legislation.

Mr. DOOLITTLE. I think you are answering yes to that.

Mr. Chairman, could I ask that we have a statement by John A. Helms—and for the record Mr. Helms couldn't be here; but he is a professor of forestry at the department of environmental science, policy and management, at the College of National Resources at UC Berkley. And I think the statement would have a relevance to the matter in consideration.

Mr. ROSE. Without objection, so ordered.

Mr. DOOLITTLE. Thank you.

[The prepared statement of Mr. Helms appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much.

Mr. Williams.

Mr. WILLIAMS of Montana. Thank you, Mr. Chairman.

Mr. Unger, it appears that with regard to areas that have been clearcut on public land, Federal land in Montana, regeneration is made—may not be successful within the 5-year standard that the Forest Service has placed on itself, except in the most optimum sites.

Now that may be because clearcutting was allowed where the slope was too great or the elevation too high. Or it may just be that the law is too strict and that we shouldn't expect successful regeneration within 5 years on these sites. But it appears it is not working from studies in Montana.

Do you think our expectations of 5 years for regeneration is too short, or is it that the Forest Service has made mistakes and allowed cutting in areas where they shouldn't have?

Mr. UNGER. I would like to review those studies. We certainly want to, in every way and every time, ensure that we are able to have regeneration within the 5 years provided for in the law.

If there are cases where that has been unable to be accomplished, it is our policy to revise the situation and not to do harvesting in such areas.

Mr. WILLIAMS of Montana. The Forest Service does go back up until the 5 years has elapsed and continually checks for regeneration?

Mr. UNGER. That is our policy. If it is carried out properly, that is what we do, we look to see whether the regeneration has occurred, and we conduct periodic inventories.

Mr. WILLIAMS of Montana. Finally, since the late 1980's, the clearcutting policy in the Forest Service has changed.

Have either you or Mr. Loftis seen clearcuts on Federal land that you believe were inappropriate?

Mr. UNGER. I will ask Mr. Loftis to begin, and then I will complete that statement.

Mr. WILLIAMS of Montana. I am not talking about clearcuts over the past few years, but any clearcuts that the Federal Government allowed.

Mr. LOFTIS. Let me respond by saying that there are certainly cases where clearcuts have been made. And I would use the southern Appalachians as an example, based on less knowledge than we have today.

Clearcutting in eastern hardwoods, for example, requires largely the regeneration sources be in place. So a standard prescription

that a clearcutting be done may or may not result in successful regeneration, depending on whether or not adequate attention was given to ensuring that regeneration sources were in place.

When adequate regeneration sources are evaluated—when regeneration sources are evaluated prior to the application of clearcutting, it is successful.

Mr. WILLIAMS of Montana. About what timeframe? Do you think it has been that the Forest Service has not allowed what might be considered inappropriate clearcutting?

Was it the 1980's or the 1970's or the 1940's? At what point did the Forest Service come to a new policy which has resulted in what you now believe would be appropriate clearcuts?

Mr. UNGER. Well, let me say that I think that the history of National Forest Management, in regard to clearcutting, has changed several times over the years.

In the 1930's, there was much less emphasis on it and concern that selection cutting was the best way to go, and research seemed to support that. After some period of time, there was concern that maybe that was not being successful and that there needed to be more even-aged management to keep up with the evolving science of the profession.

Then there are some that feel that it went too far and overboard. We have had a pulling back in recent years. Some of this, also, is in response to the values of the public. The way in which we manage national forest lands is not something that is done wholly on economic grounds or some other grounds. It attempts to respond to all of the needs of the forest and all the needs of the people. And clearcutting is unpopular with many people.

Yet we feel that we need to have a scientific basis for what we are doing. We cannot say that clearcutting shall never be used simply because it is unpopular if it is needed for the proper management of the forests.

Mr. WILLIAMS of Montana. Finally, Mr. Chairman, I would just note that the only studies I have ever seen on the success of the regeneration of these clearcut areas have been done by private individuals.

The Forest Service should be—you say you wanted to see these studies. I asked you if there are any studies. You said you would like to see them. I would like to see the Forest Service studies that tell us that this clearcutting is—and I am not worried about the popularity of it—I want to know whether or not the land can sustain it.

Doesn't the Forest Service have their own studies on whether regeneration is working?

Mr. UNGER. Yes, it does.

Mr. WILLIAMS of Montana. I would like to see those.

Mr. UNGER. We will be happy to provide them to your office.

Mr. ROSE. Thank you all very much.

Mr. VOLKMER. Mr. Chairman.

Mr. ROSE. Yes, sir.

Mr. VOLKMER. Mr. Chairman, I just—because I have to leave for a few minutes—bring to the attention of the gentleman from Montana, I hope he is going to be here; and in the meantime, I suggest that you review the statement of Professor Oliver, which I think is

one of the best statements I have ever seen in regard to the question of even-age and uneven-age management.

And I would recommend it to you very highly to read before you go way out front in regard to the question of even-age management.

Mr. ROSE. All right.

Thank you all very much, Mr. Unger and Mr. Loftis. We appreciate you being here.

Mr. UNGER. Thank you.

Mr. ROSE. Our third panel is Dr. Dennis Le Master, professor and head of the department of forestry and natural resources, Purdue University, of West Lafayette, Indiana; Dr. Chadwick D. Oliver, professor of silviculture, college of forest resources, University of Washington, Seattle; and Dr. William Willers, biology department, University of Wisconsin at Oshkosh, in Oshkosh, Wisconsin.

Will the subcommittee please come to order?

Gentlemen, all of your complete statements will be made a part of the record of this hearing. I would very much appreciate it if you would summarize for the subcommittee what it is that the message that you would like for us to hear today.

Dr. Le Master.

STATEMENT OF DENNIS C. Le MASTER, PROFESSOR AND HEAD, DEPARTMENT OF FORESTRY AND NATURAL RESOURCES, PURDUE UNIVERSITY

Mr. LE MASTER. Thank you, Mr. Chairman. I will attempt to summarize to the extent that I can.

Biological diversity is a critical environmental issue. Anthropogenic impacts on the Earth have reached such a scale that they have drastically reduced, and in some cases eliminated, many species of plants and animals.

Maintaining biological diversity is a desirable social goal, and it is fitting that Congress explore ways by which it can be accomplished through public policy.

In this context, the goal of H.R. 1164 is comparatively modest, seeking to conserve biological diversity on Federal forest lands and to protect them from the consequences of clearcutting and, "other forms of even-age logging."

It is modest because, given the extent of development and resource extraction on private forest lands and the current extent of human disturbance on Federal forest lands, Congress might want to enhance the current level of biological diversity on the Nation's forest lands as opposed to merely conserving it.

One effective means of doing so in the Eastern United States would be to increase the purchase of in-holdings on Federal forest lands to create larger blocks of contiguous forests.

Congress might also want to protect Federal forest lands from a variety of human activities which, uncontrolled, can have substantial impacts on biological diversity, including intensive human recreational activities, livestock grazing, off-road vehicle use, and mining.

A broader more appropriate purpose for the legislation, given its apparent intent, might be: To provide a system of representative, sustainable forest ecosystems well distributed across the landscape

of the United States at various stages of ecological succession through appropriate management of Federal—let me repeat—Federal forest lands.

Such a goal would be consistent with the economic rationale usually given for public ownership of forest lands. The combined production of forest resources and temporal perspectives from private and public ownership would combine to provide the optimum and mix of forest resources.

The means for attaining the goal of H.R. 1164 is proscribing or prohibiting even-age management, including specifically the silvicultural system and logging practice of clearcutting. In other words, according to the authors of the bill, if even-age management were stopped, biological diversity on Federal forest lands would be conserved.

Mr. Chairman, I subsequently went and evaluated the means in this bill according to five criteria: Biological effects, economic efficiency, equity, social acceptability, and administrative practicality.

And in the case of the first three, biological effects, economic efficiency, and equity, you come up with mixed results. The bottom line, a prohibition against even-age management on Federal forest lands would probably reduce biological diversity in some instances and increase it in others. The results would be mixed.

The point is, mechanical or mindless application of any management regime by statute or by the unthinking practice of a natural resource professional will ultimately result in failure. Management prescriptions must be appropriate for each and every site.

Site sensitivity and thoughtfulness are prerequisites for good forest management, good wildlife management, good natural resource management of virtually any kind.

In terms of social acceptability, because no one really likes the appearance of a clearcut or timber harvesting normally of any kind, it would have some acceptability. But the problem is, social responsibility. Would, indeed, the bill deliver what it has purported to do? And that is a real issue.

And that gets at administrative practicality. In my judgment, H.R. 1164 would not make clear the objective of forest management for Federal forest lands. Instead, it would confound them. It would not improve agency decisionmaking. It would simply preclude use of even-age management, which may, in some cases, have some beneficial impacts.

As an alternative to H.R. 1164, I would suggest the subcommittee consider developing legislation amending the Multiple Use-Sustained Yield Act of 1960 that would list biological diversity as one of the resources contained in the first sentence of section 1 and, thereafter, that would make simple conforming changes in the remainder of the five-part statute.

The fact is, biological diversity is no less a resource than outdoor recreational sites, range forage, timber, water, wildlife, and fish. Indeed, it is a resource essential to human survival at least as we know it.

Furthermore, I would suggest the Forest and Rangeland Renewable Resources Planning Act of 1974 as amended, the Federal Land Policy and Management Act of 1976, the National Wildlife Refuge System Administration Act of 1966, and the National Indian Forest

Resources Management Act be similarly revised; that biological diversity be one of the goals for management of these lands, and that it is done with the intent of providing a system of representative, sustainable forest ecosystems well distributed across the landscape of the United States.

I would also suggest the subcommittee neither prescribe, nor proscribe, management strategies, technologies, or techniques in this proposed legislation. They are not the problem. The principal problem is the ambiguity with which the management goals of the Federal forest lands have been articulated. Authorizing committees say one thing, appropriation committees say another; and the agencies pick and choose between them as it serves their purpose and culture.

In conclusion, I cannot recommend passage of H.R. 1164 for it is fundamentally flawed. Its scope is too small, and the means provided would not lead to unambiguous accomplishment of its expressed purposes.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Le Master appears at the conclusion of the hearing.]

Mr. LE MASTER. I would like to reply to a very good question raised by Congressman Williams, if I could.

Mr. ROSE. No. Not until we get to questions. Just hold on.

Dr. Oliver, could you summarize your statement?

If you agree with Mr. Le Master, maybe you could offer some of his points that way and then add any that he didn't raise.

STATEMENT OF CHADWICK D. OLIVER, PROFESSOR, SILVICULTURE, COLLEGE OF FOREST RESOURCES, UNIVERSITY OF WASHINGTON

Mr. OLIVER. All right. I will try to do that.

I would like to say that this bill has some positive points and some points that need improvement. What I will try to do is first describe both the positive and the ones that need improvement and then give some background to the concept of ecosystem management.

The bill: The positive points are that the bill recognizes conserving biodiversity as an effective way of managing. And this, I think, would be more effective than trying to preserve one species or trying to preserve one type of forest—say just one structural type.

It also recognizes that harvesting trees and forest management are compatible with achieving these values. And I think that is important, because wood is so environmentally sound compared to its substitutes that it is an ecologically sound material.

The areas where the bill needs improvement are: That the concept that all native biodiversity can be protected without any even-age management is based on a long held and, although appealing, but scientifically outdated and wrong ecological concept.

The bill tries to prescribe a very uniform prescription to forests which are extremely varied in vegetation, climate, soils, and natural disturbance regimes. The descriptions of the adverse effects of even-age logging are incorrect in several ways: One, they generalize from special cases to even-age logging in general; two, many of the same impacts that they describe resulting from specific cases can

also occur in uneven-age logging, natural disturbances, or no disturbances at all; three, it didn't describe some of the benefits of even-age logging; and four, another problem is the bill tries to impose a uniform top-down prescription for forests.

Now, to get to the scientific basis of this: If you look in my written testimony on page 13, figure 2, up until recently, people had the idea that forests existed in some steady state. We sometimes refer to it as "climax," "ancient forest," or "old growth," where left to itself, it would exist in that condition. You would have individual trees dying, others growing up.

And it was felt that since this was a natural state, biodiversity would be maintained by this condition. It was hence assumed that such things as selection logging would mimic this one state or condition and would maintain biodiversity.

We now know that forests just don't work this way. We know that, basically, the scientists have changed their opinion on this completely, that trying to manage in an uneven-age condition will basically lose some species that need the large open areas. This doesn't even go back to clearcutting and monocultures alone, because that is not what clearcutting has always done.

What we know now is that natural disturbances occurred on a variety of scales and sizes. And following these disturbances, you had regrowth of certain vegetation and certain animals that used those open areas.

With all due respect, they weren't just bare mud in places of no biodiversity. In fact, if you see in figure 2, it is one of the most diverse types of—contains some of the most diverse biological organisms. But then as the forest regrows, it excludes these species. Other species exist in the area.

So what happened is the diversity was maintained by a series of disturbances and regrowth—

Mr. ROSE. Hold up 1 minute.

Mr. DOOLITTLE. Mr. Chairman, could I just ask for a point of clarification? I have the testimony.

When you say "figure 2," is this the one you are talking about, label B here?

Mr. OLIVER. A shows the structures that we are talking about—

Mr. DOOLITTLE. The whole thing is figure 2?

Mr. OLIVER. Yes, I am sorry. Then the B shows the change in number of mammal species.

Interestingly enough, other species of plants and animals somewhat parallel that same condition so that the open and the old growth are your most diverse conditions.

Now, what has happened is that, in various parts of the country, in some places we have managed by uneven-age management primarily; and we have reduced the amount of what we call the "stand initiation" structure that occurs soon after a disturbance. And those species become limited.

In other places, we have done an overly extensive amount of even-age harvesting and we have begun to lose some of the old growth and some of the species that exist there. So to manage for biodiversity, what we are looking at is maintaining some type of a dynamic balance of structures across a landscape. And this would

include such things as where you have existing old growth, leave it. Where you have an insufficient amount, do selective harvesting to get it. Where you need more open structures, do some form of even-age management, either clearcut, shelterwood, or something of this sort.

Now, what some of our problems have been that in certain regions of the country we have done an overly large amount of just one or another of the management ways.

So in this sense, I would encourage us to not preclude any tools of management but instead look at it from the point of view of trying to maintain biodiversity, trying to maintain all the structures that the animals need and plants need, and in this way being able to maintain your balance.

Now, what I would say is I would legislate a goal such as maintaining a fluctuating balance of all structures across the landscape. I would also look at such a goal that would also provide such things as wood products employment.

Now, as for private lands, there are ways that you could find efficient ways of giving incentives for private landowners to maintain this balance of structures as well, and maintaining this balance while producing the employment, the wood products, other commodity uses—but only as by-products of maintaining this fluctuating balance.

This management would allow you to do several things: One, you would achieve your biodiversity; two, you would produce wood and other valuable products which are environmentally sound; three, the costs would be relatively low because you would be in joint production of many things; four, your protection from natural disturbances would be quite high because your breaking up of a single structure on the landscape would keep you from having large disturbances cover large areas; and five, you would provide a considerable amount of employment in the process.

That is a summary. My written statements go into more detail on some of this.

[The prepared statement of Mr. Oliver appears at the conclusion of the hearing.]

Mr. ROSE. Next is, Dr. Willers.

STATEMENT OF WILLIAM B. WILLERS, BIOLOGY DEPARTMENT, UNIVERSITY OF WISCONSIN AT OSHKOSH

Mr. WILLERS. Thank you.

I am a zoologist. I am not a forest scientist. I am not a silviculturist or a forest manager in any way. So I see a forest in a radically different way than these other people on the science panel.

I want to draw a strong distinction between basic science and applied science. The two have radically different philosophies.

Basic science simply seeks to understand the way the natural world functions. Applied science and forest science and silviculture have a goal. And this means management and a manipulation of existing conditions to achieve a desired end.

And for what we are talking about here, that desired end is wood fiber. Whether we are talking about planks or woodpulp for paper, wood fiber is what we are talking about.

To use a term from the Wisconsin statutes, the interest in forests in the part of the country that I am from, the Midwest north woods, is "recurring forest products."

Now, a basic scientist that does not have any kind of an agenda of that sort sees a forest in a radically different way. It is a complex community of which trees are only one part. They are the biggest guys on the block, so they provide substrate for other members of the community.

There is not a scientist on the face of this planet, whether basic or applied, that can stand in front of you and tell you the details of how a complex forest community operates. They just don't know. They don't even know what they have there.

There are entomologists that will go out into national forests and occasionally find new species of insects they have never found before. And I have silviculturists tell me occasionally that a tree that is ready to die is a waste, that dead timber is a waste, that rotting timber is a waste. When you have an intact, cycling forest ecosystem, all stages are substrates for other members of that forest community. So in a cycling forest ecosystem, there is no waste; there is no such thing as a waste.

I want to mention also that biodiversity is hard to define. It is not simply a recitation of species. It is the process that is going on, the interrelationships amongst all of these things. Ecologists don't even pretend to know the roles that the vast bulk of the members of that community play in the functioning of forest ecosystems.

Absolutely central to experimental science is the concept of control. A control, to put it in simple terms, provides baseline information so that where you have come—what you have achieved in your experiments, can be measured. Because in my part of the country there are no original intact forest ecosystems, baseline data have simply disappeared. And that means that the experiments that are being done there by foresters in the Midwest are like graphs being drawn in space. They have no baseline data.

The controls over the last century were erased. The deforestation in the Midwest is absolutely legendary. It was like a gigantic lawnmower that went across that Lake Superior bioregion and just took everything. They have no coordinates at all.

I support H.R. 1164 because the conservative selective cutting that has been described to me is something that can be accomplished without destroying the forest—the forest as a community. And I cling to my understanding and my definition of what a forest is.

The other members of the forest are just as much the forest as the tree, the commercially valuable trees that are there. And selective cutting can be done in such a way so as not to destroy the integrity of a forest community. Clearcutting absolutely devastates it.

I hear constantly, and I have heard for years, that clearcutting mimics natural catastrophe, such as windthrow, insect invasion, and wildfire. That is absolutely not true. In all of those natural catastrophes, the biomass that is represented in those trees settles back into the region and is cycled.

And when there is clearcutting, and that biomass is removed, that tree mass has removed micronutrients from the substrate. And after a few cycles, that has had a drastic effect on forest soils.

I want to tell you about something that happened to me in 1990. I was out on the west coast so that I could observe what they called redwood summer. And I was staying with my family in Bandon, Oregon, on the southern coast; and I had occasion to talk to a German forester, a big burly man from Germany who was visiting next door. And he told me—and I tell you, he had tears in his eyes—he said, for God sake, can't you see what you are doing here; can't you learn from what we have done in Europe?

For the last several centuries, they have removed timber from an area. Then they had to grow another crop. After a few rotations—after five rotations, they have depleted their forest soils. And he said, you are going down the same path that we did.

I would like to read one paragraph out of my written statement, because I think it is germane.

In my part of the country, there is intense interest in the Minnesota draft Generic Environmental Impact Statement that was done over a period of several years at a cost of almost \$1 million. It is a 600-page document. It was done by Jaakko Pöyry, a European forestry consulting firm, and seeks to determine the impact at three different levels of cutting roughly 4, 5, and 7 million cords per year.

And I want to read you something here: The impact statement estimates of impacts. "Although the authors admit that their knowledge was fragmentary, their data incomplete, and their assumptions unrealistic, they nevertheless prescribe clearcuts of over 10,000 acres * * *." This was supposed to show us the best, the most up-to-date concepts in forest management. Over 10,000 acres.

If you want to know what that is, that would be a square, 4 miles on a side. That would produce a moonscape. "* * *" and state their aim to suggest mitigation actions that are"—and this is a quote, "practical * * * in the political, financial, and administrative environments of Minnesota," and this, mind you, in spite of the fact that the study acknowledges that at all levels of logging being considered there would be declines in rare and endangered species and communities, as well as loss of genetic diversity. These huge deforestations are to occur in what foresters call biodiversity maintenance areas because, they tell us, such clearcuts mimic large-scale natural catastrophe, something they must know is false. That is absolutely false.

A reviewer of the draft Generic Environmental Impact Statement who wanted to see consideration of the World Conservation Union's approach of preserving 10 to 15 percent of each ecosystem in an ecoregion was answered by the project manager, James McNutt, with, "To not harvest large parts of the forest is not an option." Significantly, Mr. McNutt is a former employee of a corporation that stands to profit handsomely from Minnesota's deforestation.

And I finish by saying that this is typical of forestry in America since I started looking at it closely in 1968.

I want to say something about the term biodiversity maintenance area. This was coined by biologists as a term to use instead of wilderness, because wilderness just generates an absolutely powerful reaction in the forest products industry. And so biodiversity maintenance area really was intended as a synonym for wilderness. And to use this, to use biodiversity maintenance area in this impact

statement and then to say that, well, we are going to have 10,000-plus acre clearcuts in these biodiversity maintenance areas is absolutely a ridiculous situation.

[The prepared statement of Mr. Willers appears at the conclusion of the hearing.]

Mr. ROSE. Dr. Willers, I hate to cut you short, but you are kind of explaining your testimony now, and we really thank you for your presentation; but I am going to give 5 minutes to Mr. Doolittle to ask you some questions now and then 5 minutes to Mr. Williams.

Mr. DOOLITTLE. I would like to ask Dr. Oliver, and Dr. Le Master, you two who have testified, as I understand it, in opposition of this bill taken in total.

Do you feel that, taking the provisions of this bill in total, the bill would harm the forest ecosystem if it became law?

Mr. OLIVER. Yes, I do.

Mr. LE MASTER. I would say in some instances it would. In some instances it would not.

My testimony is essentially that there are some beneficial aspects of the legislation; there are some adverse aspects as well.

Mr. DOOLITTLE. Now that is not my question. I said in total. I realize there are some pluses and some minuses.

But if you had to make a judgment as to the overall impact of the bill, does it hurt the forests or does it help the forests?

Mr. LE MASTER. I won't answer that question when phrased that way because, like most things, it all depends on—it will help certain sites, certain forest conditions; and in other forest conditions and sites, it would work adversely.

Mr. DOOLITTLE. I think that is the extent of my questions, Mr. Chairman.

Mr. OLIVER. Could I just say, I think, temporarily, it may help some. But I think in most sites, it would not help. In the long run, it would not be beneficial.

Mr. ROSE. Thank you very much.

Mr. Williams.

Mr. WILLIAMS of Montana. Thank you.

Dr. Le Master, you wanted to answer a question I didn't ask you, but I want to hear the answer.

Mr. LE MASTER. Congressman Williams, I am from the West. I was born, raised, and educated in the State of Washington, spent a lot of time in western Montana, including the Bitterroot Valley.

In fact, Mr. Chairman, this hearing could be called the 30th anniversary of congressional concern on clearcutting on the national forests, beginning in 1964 with the—

Mr. WILLIAMS of Montana. The Member raised the issue because his home valley, the Bitterroot, was being hammered, and he had had it and so had scientists, both basic and applied scientists had.

Mr. LE MASTER. But when is a clearcut good and when is it bad is not the principal issue in the West, whether clearcutting is good or bad on a particular site. It is the cumulative effects that clearcutting in the West is having on biological diversity and on public values of forests.

Even if the acreage is only 13 acres in size and you have alternating 13-acre clearcuts across the landscape, as the astronauts witnessed and as citizens witness when they fly over the Pacific

Northwest—the cumulative impacts are adverse to biological diversity.

And when I am talking about biological diversity in forests, I am talking about a forest as an integrated community of living organisms and the environment with which they interact.

Mr. WILLIAMS of Montana. Thank you.

Dr. Oliver, you heard Dr. Willers' discussion of the cycle from the standpoint of basic science. Within that, do you contend that, in fact, clearcuts in certain places would enhance the biological cycling that I think we all agree is so necessary on this globe?

Mr. OLIVER. Yes. Could I explain it just a little bit?

Mr. WILLIAMS of Montana. Please.

Mr. OLIVER. First of all, if we look at natural disturbance patterns, they went all the way from things that were much more devastating than any of our clearcuts, where you had something like windthrow, dry material, then a hot fire through that or reburns, that has much more than anything that we do in our clearcuts, all the way to things where they left some snags, left some green trees, did the equivalent of a partial cut. So that what I am saying is we should keep the whole range of different types of disturbances. Because each one of these gives advantages and allows certain species to exist there.

Now, in terms of the clearcutting being different because it retains biomass, in some places it does, in some places it doesn't. In fact, there are some places that we have more biomass now because we haven't had fires going through than existed naturally.

In terms of the micronutrients, I want to clarify a point there. In most of our clearcutting or most of our harvesting, we leave the tops of the trees, the foliage. We take out the stem. Most of the nutrients are in the tops of foliage. The stem has mainly carbon, hydrogen, oxygen, and a little bit of calcium in certain places.

What the Europeans did was they did a lot of raking of the litter and removing of the small stems to use for fodder for their houses. That was much more intensive removal of nutrients. In fact, our rapid regeneration, after our harvesting, gets new plants in the ground and gets, what is it?—the taking up of nutrients much faster than some of the natural disturbances that allowed more nutrients.

Mr. WILLIAMS of Montana. Doctor, let me interrupt you right now and ask Dr. Willers to respond to that in the 1 minute I have remaining before we have to go vote.

Mr. WILLERS. Because I have read many of Dr. Oliver's statements, I think he is probably dealing with his specific bioregion in the Pacific Northwest. And I don't believe that what he is talking about in the Pacific Northwest really is germane to the area that I am most familiar with, which is a gigantic aspen plantation and whitetail deer farm.

Mr. WILLIAMS of Montana. Thank you, Mr. Chairman.

Mr. ROSE. All right.

Well, we are making great progress here. I am sure we will have this problem completely solved and negotiated out by the end of the fifth panel. But then I am an optimist.

Gentlemen, thank you very much for shedding great light on this problem. And we will have to go vote now and return with panel 4, Mr. Lisko, Ms. Feryl, Mr. Hayes, Mr. Williams, and Mr. Myers. I will be right back.

[Recess taken.]

Mr. BAESLER [assuming chair]. We will get started. I will substitute for the chairman right now.

Mr. Lisko, Ms. Feryl, Mr. Hayes, Mr. Williams and Mr. Myers will join us. Sorry for the delay. We have a vote right now. We will try to get moving.

As most of you probably know by now, your written statements will be put in the record in their entirety. I would like now, if you want to make any comments in addition to it, please take the time and try to, of necessity, keep it within our 5-minute rule.

Mr. Lisko, I will ask you to start.

STATEMENT OF PAUL LISKO, INDEPENDENT LOGGER, MOUNTAIN DREAMWORKS, VALLECITOS, NM

Mr. LISKO. My name is Paul Lisko. My residence is Rancho de Trujillo, Vallecitos, New Mexico. My family and I have lived there for the past 14 years. I am a second-generation American. My grandparents immigrated to this country from Eastern Europe in the early part of this century. My father and my uncles were all blue collar workers, and that is the work ethic with which I grew up.

I am a logger, and I have harvested timber and other products, such as southwestern style building materials and fuel wood, from the Carson National Forest of northern New Mexico.

I have also been an active member of the Southwest Forest Fire Fighter organization for the past 12 years. And on my last assignment in southern Idaho, in the summer of 1992, I was field promoted to a task force leader and placed in charge of two, 20-person hand crews and three pumper trucks.

I wish to speak with this subcommittee today about my experiences with current Forest Service timber management practices. I am here to tell you that these practices—specifically those of even-aged management perspectives—are inappropriate for sustainable timber resources and are detrimental to not only the forest ecosystem but to forest-based economics as well.

In the spring of 1991, my family and I went for an outing in the woods. I knew of an ideal place off of a secondary forest road from a timber sale area where I had worked a few years before. Passing through this area known as Jarita Mesa, we noted that there were a large number of blowdown trees. These trees were initially left behind in the sale area to serve as seed trees in order to naturally regenerate stands of ponderosa pine. When totaled, the number of blowdowns came to more than 800.

I wrote to the district ranger to express my concern that the windthrow of the seed trees on Jarita Mesa might adversely affect the natural regeneration planned there. In reply, I received a lengthy letter which basically thanked me for my comments but contended that, since I knew little of forest service silvicultural practices, I should just mind my own business and leave it to the experts in the field.

But I am not so easily dissuaded. I consulted one of the experts in the field, specifically the 1987 Ponderosa Pine Symposium Report, written by USDA Forest Service Plant Physiologist L.J. Heidmann. Entitled "Regeneration Strategies for Ponderosa Pine," it outlined five prescriptions necessary for successful regeneration of the species.

On Jarita Mesa, Forest Service silvicultural practices were in obvious noncompliance with three out of the five and in questionable compliance with a fourth.

Eventually, it was necessary for me to point this out in a formal appeal of the district ranger's decision, the first ever filed on the Carson National Forest.

Partially as a result of this appeal, a salvage sale planned for the area did not occur. However, due to Forest Service in adherence to its own scientific reports—which are paid for with taxpayer money—little successful regeneration and inappropriate silvicultural practice currently continue on Jarita Mesa.

To defend such practices, the Forest Service argues that each sale area is different and, therefore, each district must apply different management directives. Ostensibly, it must then follow that even-aged management should not be applied *carte blanche* to most sale areas. Unfortunately, this is not the case.

Let me clarify here that I am a tree cutter, not a tree hugger. I live and work in the woods, and my family depends on our livelihood being generated in part by harvesting forest products from public lands. I am not against all timber harvesting on the national forests. However, I am against bad management of these resources. To this degree, one of the worst practices to date is even-aged management.

Even-aged management not only disrupts the natural order of regeneration of timber specifically, but also disrupts necessary biological interactions within the ecosystem upon which this regeneration is dependent. After employing an even-aged prescription, such as a seed tree cut, a formal census of the rodent population is supposed to occur. This is necessary in order to ensure that an overabundance of rodents isn't left to eat any resultant cone crop. My experience has been that this formal census never occurs.

In this instance, there is an important chain of events that is being broken through Forest Service mismanagement. Even-aged management creates a situation wherein the majority of trees, usually the largest and most mature of any given stand, are harvested within the boundaries of a timber sale. Hawks and other raptors, which had depended upon the canopy that these trees provided, leave the harvested area for more suitable habitat elsewhere. The rodent population increases as remaining predators are insufficient to adequately control its growth. More mice and squirrels eat more pine cones, which create less seed stock, which means less trees are grown which results in less employment for loggers over the long term.

The Forest Service utilizes these even-aged harvest strategies with apparent disregard for the "desired future condition" as little subsequent monitoring occurs to assure the success of such a prescription. This is most disturbing given that the area where I am

familiar with logging is on the Vallecitos Federal Sustained Yield Unit.

This sustained-yield unit was one of six established through an act of Congress in 1944. It is to be managed to provide a sustainable supply of forest products, primarily sawtimber, for maintenance of steady employment opportunities to the benefit of economic stability within the dependent local communities.

However, stability to these affected communities through large-scale timber activity has provided little more than a hand-to-mouth subsistence living for most residents. Clearly, the economics have remained stable, but at poverty levels.

As long as the Forest Service continues to plan timber sales on the basis of even-aged management over wide areas of forested land and then gear these sales for harvest by large-scale operators whose investment in these communities is based solely upon their bottom line, then this deplorable social situation will continue.

Additionally, with the depletion of the timber resource also comes the loss of traditional agriculture to the area. As a case in point, the heavy harvest of timber resources on Jarita Mesa has resulted in adverse water quality for downstream users. I submitted a newsletter with my written statement entitled "Logging Damages Acequia Systems" from the Rio Grande Sun in Espanola, New Mexico, dated December 27, 1990.

That newsletter states that these users have traditionally depended upon this water for irrigation of crops. For the past few years, they have noted a disruption in both the frequency and amount of flow through their 100-year-old acequias, or ditches. This, again, is a direct result of even-aged harvest practices.

One final result of these practices has been a lack of accounting for the number of seed trees left behind. Of the five timber sales that had occurred on Jarita Mesa in the late 1980's, post-harvest densities averaged 8 to 10 seed trees per acre according to Forest Service records.

However, in 1991, the district ranger claimed, in written correspondence, that only four to six seed trees per acre remained. Taking into account the 800 windthrown trees mentioned earlier, that results in a discrepancy of about 11,600 trees with a minimum d.b.h. of 18 to 20 inches.

At the time, the timber would have been valued at about \$1 million. I inquired of the Carson supervisor's office what happened to it, but received no response. To leave unaccounted such a discrepancy, it becomes clear that the Forest Service management of Jarita Mesa was either grossly incompetent, manifestly negligent, or completely fraudulent. Even-aged management promotes fiscal irresponsibility.

In conclusion, I hope that I have made clear how even-aged management is inappropriate on the national forests not only for its obviously detrimental effect on ecosystems, which I have experienced firsthand, but also for its adverse effects on dependable employment opportunities, rural community stability, and basic fiscal responsibility. I realize that I am just one small voice trying to relate to you how important it is for you to support H.R. 1164 and enact its legislation to prevent even-aged management practices from eventually destroying our precious national resources.

I have heard it stated that the Forest Service needs to continue clearcutting and even-aged management as tools in maintaining adequate timber supplies on the national forests. Based on my experience, I find that statement to be unfounded.

Keep in mind that many years ago, the Forest Service instituted a program of complete wild land fire suppression that they have only recently admitted was inappropriate management. The national forests cannot sustain similar and potentially worse management decisions.

You are probably familiar with the adage that if it looks like a duck, walks like a duck, and quacks like a duck, it is probably a duck. According to the accepted Forest Service logic, even-aged management policy may look like a disaster and feel like a disaster and smell like a disaster, but it is actually a beneficial silvicultural strategy.

Now, I have made my living as a logger on the national forests and cannot reasonably expect to do so unless such poor management of timber resources on the part of the Forest Service is adequately addressed and sufficiently remedied.

The Forest Service needs to live up to its motto of "caring for the land and serving people." Make them do so by passing into law H.R. 1164 now.

Thank you for allowing me this opportunity to testify.

[The prepared statement of Mr. Lisko appears at the conclusion of the hearing.]

Mr. BAESLER. Thank you, Mr. Lisko.

Do you have anything, Mr. Volkmer?

Mr. VOLKMER. No, Mr. Chairman.

Mr. BAESLER. We will go onto the rest of the panel first.

Ms. FERYL, photographer from Ridgefield, Washington.

You are up. I don't think you were in when I made the point that we have all your written statements in the record. If you want to add to it or do it within a 5-minute period, we would appreciate it.

Ms. FERYL. Well, fortunately for you, I have taken 10,000 slides of national forest lands, and I have whittled them down to 40, and I will be expedient.

Mr. BAESLER. Go right ahead. Do you need the lights turned down further?

Ms. FERYL. It would help, thank you very much.

STATEMENT OF ELIZABETH FERYL, PHOTOGRAPHER, RIDGEFIELD, WA

Ms. FERYL. My name is Elizabeth Feryl, and I would like to thank you very much for the opportunity to be here.

I have been documenting forest practices since 1988. I am not a member of any environmental group, nor am I sponsored by any of them. I am a private citizen. And I must say that, on my way here, I was given the old heave hoe by store clerks, teachers, photographers, people on the street that knew I was coming to speak before you and speak for the forests. And there is a huge public out there whose voice has not been heard, and I would like to speak for them and for the forests today.

I have been asked to show some of the national forests across the United States, with some clearcutting situations.

This is the Arapaho in Colorado.

Mark Twain National Forest, Missouri.

Shawnee National Forest, Illinois.

Mendocino National Forest, California.

Green Peter BLM, Oregon.

Mount Hood National Forest, Oregon.

Gifford Pinchot National Forest, Washington.

Chequamegon, Wisconsin.

Cherokee National Forest, Tennessee.

This map indicates how fragmented the forest lands are to begin with. The grown areas are national forest. The white areas are private and industrial.

In the Northwest, we are blessed with some extraordinary natural phenomena.

This is Mount Saint Helens, a volcano that blew up back in 1988.

And this is an unnatural disaster which is private clearcutting.

Some of these clearcuts extend for 30 and 40 square miles in any direction. And they are clearcut and replanted in monocultures.

This makes public more precious for they are small pockets of biodiversity.

On the right is national forest; on the left is private lands; and to the rear are more clearcuts, cutting into the national forest.

Industry is very straightforward about their land use. They grow trees to harvest as crop. Forest Service lands are not necessarily very different.

This is the Olympic National Forest, in the Shelton district. Some of these lands have been replanted four and five times. The national forest lands are the leftovers of the timbered areas in the Northwest. Oftentimes the hillsides are steep and very fragile. Once these tree plantations grow up, this is what you have.

We are here talking about biodiversity. These tree plantations are not pockets of biodiversity. Oftentimes they are monocultures, they are planted so thickly that nothing can grow in the canopy underneath.

This is Gifford Pinchot National Forestry Nursery in Wind River. There are 17 million trees planted in this one field. And sadly enough, many of these trees are the offspring of just one tree. So if there is any genetic engineering and there is a weakness, say, for infestation of insects, you have that many trees that are going to be weak. This is one of those trees.

You see this a lot. Clearcuts, tree farms, and one tree designated, please protect this tree. "Unauthorized harvest of cones or vegetation, vegetative material from this tree is prohibited. Contact the local Forest Service office if this tree is threatened by timber harvest, road construction, or other activities."

Just want to back up and show you where this tree is. So once the timber is cut, slashed, is piled up, this is in the Wallowa Whitman Forest, east side. It is burned and the soil is virtually sterilized. That makes way for massive erosion. I cannot tell you what it is like to be up in these national forests and see no topsoil. The soil condition in these upper regions reminds me of Greece, where

their forests were cut down hundreds and hundreds of years ago. Oftentimes there are slides and more erosion.

Those other forests were the Olympia National Forest.

This is the Siuslaw down along the Oregon coast. And sometimes entire hillsides give way.

This creek is a tributary to Elk River, which is one of the highest salmon producing rivers in the Northwest. Forty-four thousand tons of debris slid down into this roadway.

And this was the belly of the beast. This was where it started.

Now this is private lands. But the sad thing is, is that a lot of the cutting on private lands affects public property and lands and waterways. It scoured out—that particular blowout scoured out one-quarter mile of stream, took it down to bedrock. It is 30 feet deep, 60 feet across.

And these are common. I just happened to be here for this landslide. But they are very prevalent.

So this is the hand we have been dealt, miles and miles of tree plantations, often on steep, fragile slopes. But among these ecological disasters are islands of biodiversity.

I would like to take a look at just one of those. This is the Siouxson drainage. It is in the Gifford Pinchot National Forest. It is a recovering ecosystem. It was burned about 80 percent, and it has recovered. And because it has grown back prior to current logging systems where there is clearcutting, and slashing, and burning, and pesticides and herbicides, what you have is a viable ecosystem here with the components of a real live forest.

This shot was taken 50 feet above the Siouxson River. You can count the rocks from the hillside. That water is so clean and pure. The fishing is incredible. People come from all over to experience the Siouxson. I ran into dozens of people on that trail.

This picture is taken in just the next drainage over. These fragmented trees on the hillside are visible from the Siouxson. And cuts are marching toward the drainage. It is areas like this that make H.R. 1164 so important, because it would protect recovering ecosystems that have biodiversity.

And let's not forget the Pacific yew tree, the only known cure for ovarian cancer. Part of the reason I am here is that my best friend died of ovarian cancer. This tree ended up on slash piles for dozens of years and thought to be a weed. We don't know what other medicinals that might lie in our national forests.

This is the Siskiyou National Forest. It is an ecosystem that is 100 million years old. It is regarded to be, by some, the most diverse conifer forest on the face of the Earth. It has ponderosa, eucalyptus, madrona, Douglas-fir. The list goes on and on.

But let's not forget that one out of every four trees cut in the Northwest is shipped abroad, unprocessed, in the form of log exports. This puts additional pressure on our natural resources, our public lands, to be cut, to feed local mills.

Just to give you an idea of scale, you can't even see the truck that is parked down there in the far left corner of that hillside.

This is the Olympic National Forest. Mount Hood National Forest. This is new forestry. Annie Kerr refers to this as a kind of more gentle rape. They leave a few shelter trees.

I know that there are experiments going on. The Forest Service has a few experimental forests. But we are running out of time, and the cutting is continuing.

Is there any hope? I would like to think that there is. Lots of times when I am out there in what should be a forest and there is not a tree in sight and the wind is blowing and the only sound I can hear are buzzing flies, there are no birds, there is no wildlife, some of these sights bring me to my knees.

And I am appalled, as a private citizen, that our public lands are treated in such a dismal and disrespectful way and that we are losing them at such a rapid rate.

I do believe that H.R. 1164, if passed, would help to maintain some of these absolutely precious areas on our public lands and keep them for future generations.

Thank you very much.

[The prepared statement of Ms. Feryl appears at the conclusion of the hearing.]

Mr. BAESLER. Thank you.

We are going to have to go vote, if you all heard. Thank you very much for a very excellent testimony.

For a person who doesn't know a thing about the forest, coming from the eastern part of the States, it has been very educational.

We are going to have to go vote. Hate to do this to you one more time; but, unfortunately, we have to vote on keeping the Government running.

So we are in recess.

[Recess taken.]

Mr. ROSE [resuming chair]. The subcommittee will resume.

Our next witness is Thomas D. Hayes, forest ecologist, University of California-Berkeley.

Mr. Hayes.

STATEMENT OF THOMAS D. HAYES, FOREST ECOLOGIST, UNIVERSITY OF CALIFORNIA-BERKELEY

Mr. HAYES. My name is Thomas D. Hayes, and I thank you for the opportunity to testify today.

Increasingly, urgent need exists to conserve native biodiversity within our Federal forests. Destructive even-aged forestry practices, including clearcutting, should be replaced on all of the Federal lands by selection management in order to achieve sustained productivity, maintain vital ecological processes, and conserve remaining examples of our Nation's unique natural heritage.

Before proceeding with my prepared statement, I would like to rebut some of the previous statements and testimony presented this morning. First of all, it was implied that clearcutting is necessary for fire control, and this is untrue. The incidence of fire should be reduced with selection management. This is because clearcuts greatly increase the amount of fine fuels close to the ground early on, and this is a prime component of fire hazard. Also, later on in the succession the single species plantations that develop from clearcuts lead to pest problems which in turn lead to standing dead trees which cause an extreme fire hazard.

Second, I would like to talk about the statements that clearcutting can actually increase native biodiversity. These are

just not true. Only the number of weedy nonforest species of plants and animals increase in clearcuts. This does not constitute an increase in native biodiversity of the forest.

And another point, there is talk of 13-acre clearcuts in California and other smaller clearcuts. Actually small clearcuts are likely to be at least as damaging as large ones. This is because of the edge effect. The edge effect indicates that the invasive weedy plants and other animal species like predators of bird nests will increase with small clearcuts because of the increased edge. Actually fragmentation of this sort is the major reason for the decline of song birds throughout the country.

Another point I would like to address is that there is no reason that selection management would increase the construction of roads. Skidders, the machinery that is used to extract the cut logs and to place them on the logging trucks do not use new roads. Also, foresters are quite adept at addressing problems such as reducing road construction. For instance, selection harvesting can be packaged for coordinated bidding by many small local contractors.

Then, the last point I would like to make before I proceed is clearcutting does not mimic fire, windstorms or other natural disturbances as was alluded to in earlier testimony. Clearcutting removes essentially all of the structure in a stand, including the large trees, the logs, the snags, and other components of structure during harvest and subsequent site preparation. With natural disturbances these snags, deadwood, litter, and nutrients are left largely intact. Clearcutting is much more intense and a much more frequent disturbance than is ever imposed by nature.

Then back to what I would like to talk about now. Essentially, all the mature natural forests in the United States consist of multispecies all-aged mosaics characterized by structural diversity. These have naturally regenerated in a manner very similar to what is proposed with selection management.

The natural heterogeneity of plant species and communities in undisturbed forests supports a great diversity of forest animals due to the increased types and seasonal variety of food, shelter, and other habitat resources. Scientific research, however, indicates that even-aged management destroys this same native biodiversity for decades or possibly forever.

Interior forest species, especially plants and slow moving or territorial animals often do not recover following even-aged logging. Proof of the long-term adverse impact to biodiversity within secondary forests following clearcutting is found in many published studies of individual forests throughout the United States and in other countries.

Even more serious than these direct adverse impacts of even-aged management is its indirect impacts on biodiversity through large-scale habitat fragmentation. The extreme patchiness of forest habitats following cyclic even-aged management is the most recognized characteristic of this management practice throughout the United States.

Fragmentation is the principal threat to most species in the temperate zone as acknowledged by many different publications. Fragmentation increases the extinction of species inhabiting remnant forest patches as habitat areas become increasingly isolated and

colonization sources become fewer and more distant, colonization of these patches cannot keep abreast of the extinction processes.

Consequently, a net loss of species occurs over time and will continue until colonization and extinction rates once again balance, but at a much lower biodiversity.

Mr. ROSE. Mr. Hayes, did you bring us a formal statement that includes this?

Mr. HAYES. Yes, partly so.

Mr. ROSE. OK. Wind up in just a minute or so because your 5 minutes are up, but you have been here very patiently. Just complete it as quickly as you can.

Mr. HAYES. I will just skip back to——

Mr. ROSE. But you can send anything you want for the record. The main thing we are doing is putting a record together, and getting it published as quickly as we can because this is quite an accumulation of different opinions, and we want to get that ready for the Congress and the full committee and for others that may want to study it. So go ahead and make your points and know that everything you want, if you even want to submit additional testimony within the next 2 weeks, you can. Go ahead.

Mr. HAYES. Thank you.

Though supplanted by large scale even-aged management in Federal forest management during the past three decades, selection management is well known and has a long history of application. Currently, used in private forestry across the Nation, selection management could be implemented on all Federal lands with minimal delay.

Selection management best mimics the natural regenerative processes within undisturbed forests by creating openings, which are small enough to maintain the microclimatic and reproductive influence of the adjacent mature trees.

Selection management is economically superior to even-aged management; selection management achieves more complete use of growing space and greater total production of timber than even-aged management. Selection management produces higher quality sawlogs without the high cost of site preparation and planting.

Due to the smaller size of individual operations and the need to cover more area more frequently, selection management creates more job opportunities for a greater proportion of the local community. Selection management also allows for periodic cuttings which increases the flexibility to take better advantage of the variable market conditions and to provide more continuous income relative to even-aged management.

In conclusion, I strongly endorse H.R. 1164. Its prohibition of even-aged forestry will conserve native biodiversity and a multitude of other forest resources.

The proposed alternative, selection management, not only conserves biodiversity, but also has distinct aesthetic, environmental, silvicultural, and economic advantages. Selection management is much superior to even-aged management and can be implemented on all Federal lands.

Thank you.

[The prepared statement of Mr. Hayes appears at the conclusion of the hearing.]

Mr. ROSE. Thank you, sir, very much.

Next is, Mr. Jerry Williams, engineer, Hot Springs, Arkansas, on behalf of the Quachita Watch League.

Go ahead, sir.

STATEMENT OF JERRY WILLIAMS, ENGINEER, ON BEHALF OF THE QUACHITA WATCH LEAGUE

Mr. J. WILLIAMS. I am a registered professional engineer and have 25 years experience. Part of my experience has been gathering literature and papers and so forth to look at particular design problems that I might be faced with. I have done similar work in forest practice research, in studies, and my written statement provides a lot of information about this. In the case that has been in discussion here today of the percent of cut each year dedicated to even-aged management, but the percent of cut that is dedicated to regenerating the forest is a very high percentage even-aged.

Selection and thinning cuts are not the damaging cuts that we are trying to—hope to address in H.R. 1164. The profitability of selection cuttings come as a question. In selection cutting you might not get as much money with each cut, but if you accumulate all the cuts at least you have a forest left after you do a selection cut. You have some options. With even-aged you don't. You are committed to a certain—you have all your eggs in one basket for 70, 80 years, in the case of pine in the Quachita National Forest. There has been talk of natural disaster to mimic forest regeneration.

We did research of the original government land office surveys, 1820 to 1850 in Arkansas, and we did not find any recorded evidence of major blowdowns and fire damage. There was not a major forest regeneration method by nature. We presently have 320,000 acres of even-aged timber management in Quachita National Forest, 130,000 acres in the Ozark National Forest.

I don't think mother nature's event would have been quite that unkind to us since 1965. In a lot of cases that is just an excuse to continue some form of drastic intensive timber management.

We have heard a lot about the small even-aged cuts. Even-aged cuts when you are trying to talk about the damages of even-aged management, well, we have reduced our cuts, we have reduced our cuts. Well, it is an admission that large cuts are not only ugly, but they are very damaging. The only case, the major cases I have seen of small even-aged cuts has to do with when you see a forest practice study or a research paper, it is a 2 or 12-acre clearcut.

That is the only time you see them that small, in the Quachita and Ozark National Forests, most of our clearcuts are 35 to 40 acres. They used to be 80 acres. They keep reducing them because of public pressure and the damage they are causing. These small even-aged cuts are not really representative of the damage of a basin full of 35 or 40-acre cuts.

The Forest Service research admits that they do these small cuts to ignore the channel and gully erosion from the site. They are looking at soil productivity losses. Well, the stream downstream doesn't care if the soil is organic soil or subsoil from gully or channel erosion.

Another major admission in these forest practice studies, even from these small sites, is the fact that downstream, maybe one of

the worst impacts of even-aged timber harvesting is downstream channel erosion caused by increased runoff. Forest Service will tell you, well, we don't increase runoff for 100-year floods. Well, what do they do for 1 or 2-year floods?

The annual storms that occur regularly, they are influenced when you consider that even-aged cuts have a runoff impact window of 10 to 17 years, a decreasing amount of runoff. If you continually hammer stream systems with even-aged cuts each year that add runoff, you are impacting the streams.

We are seeing major stream damage in the Quachita National Forest. We do not have the monitoring and the research in place to say what we had 25 years ago. They are starting some of that today, they are starting with a destroyed polluted base line, and it is all based on the fact that forest plans say everything is just rosy because we looked at these 2 or 12-acre clearcuts, we are not looking at a basin full of 40-acre clearcuts. That is primarily the gist of my statement.

In the case of the Quachita National Forest, they say that we have eliminated fire and brought back hardwood. Well, in the last few years we are seeing a lot of pine beetle infestations. We say they have brought back a lot of pine and are bringing back pine beetle infestations. Fire is just using an excuse to eliminate hardwoods, the vegetation management EIS for the Quachita Ozark Mountains admits that regular burning will eventually eliminate hardwoods. They are pine-driven plans and that is the purpose of burning.

The two forests in Arkansas show an annual burning amount of 59,000 acres per year, show an annual amount of chemical application 24,000 acres per year, applied herbicides to 120,000 acres to the two national forests in Arkansas since 1987.

The purpose of that is to suppress ecosystems. The reason you have to suppress ecosystems with even-aged management you have such a jungle of competition coming back that you have to take drastic measures to reestablish some kind of forest.

I will conclude now. I would just like to say in summary I have given some of the justifications in my written statement for moving over to selection management. Selection management does not result in such a drastic removal of forest cover, you do not have the increased storm runoff, you do not have the jungle of competition that requires chemicals, you can manage each specific little site on a stand for what is there.

Selection management will not allow the Forest Service to convert over to even-aged tree farms, to commercial tree farming, and so that in combination with my written statement I think I have given some good information to show that if you really look at the practicality of Forest Service research's studies, it is not at all applicable to real world even-aged management on our national forest, and that is why we are seeing major damage in Arkansas. We would like to see it stopped, and we would like to see support for H.R. 1164.

Thank you.

[The prepared statement of Mr. J. Williams appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much.

Next is, Mr. George Myers, a forester from Clayton, Georgia.

STATEMENT OF GEORGE T. MYERS, FORESTER, CLAYTON, GA

Mr. MYERS. Thank you, sir.

I graduated from school in 1950, that is 43 years ago, and I must have been in a time warp because I went overseas, I did a selection cut of mahogany in Central America, I did a selection cut of mahogany in West African Ghana which was then the Gold Coast, I bought logs and curls from Ghana west to the Ivory Coast. They were under the selection management system mandated by the French and British Governments at that time.

I came back to Liberia where I ran a rubber plantation for Firestone Plantations Company and was there for nearly 14 years. Coming home I find that in the late 1960's something has happened, something has happened to the Forest Service. What are they teaching in college?

You have my statement. I won't bother to repeat a great deal of that.

Mr. ROSE. Go ahead and summarize.

Mr. MYERS. I will summarize, thank you, sir.

The summary of it is that you now have various methods called seed tree, shelterwoodcuts, clearcuts, patch-cuts, large group selection cuts, heavy salvage logging, they are all clearcuts, every one of them, and in the areas that I have traveled I have watched some of the most mismanaged lands in the world slide out to sea.

You can see the soils of Africa 40 miles out in the ocean because it is stained red. Africa is a dying continent because the farmers burn and slash, plant their upland rice, then move on within 4 years because their crop is no good. This is the destruction of the value of the soils.

What difference is there now, when we cry when we see what is happening in Brazil and in Africa, and we are feeding the starving people who can no longer feed themselves on areas that were once totally forested and the American forester who is clearcutting where on any slope approaching 2 percent or more you have, in a 4-year period of time, topsoil destruction. Because of their prescribed burns and opening massive areas of the crown to wind, Sun, and rain, those agents will destroy our topsoils.

Erosion causes the equivalent of 1,000 140-acre farms to slide down the Mississippi River every year—every normal year, where the Corps of Engineers had once planted millions of trees to prevent soil loss. Where are these trees today? They had to make room for the levees to keep the river within its course. Those trees are gone. It resulted in a massive loss of topsoil, and a massive loss of protective crown.

I would like to go into the matter of heavy salvage logging. Heavy salvage logging—I just came from one in Rabun County, Georgia. We are in the southern terminus of the Canadian Floral Ridge. Below us the beech, birch, sugar maples no longer grow. You go into your southern trees. That heavy salvage logging is an excuse for the loggers to remove everything in that area, and I have seen paint on the stumps after a cut.

There is no answer except selection management. It provides the only reasonable alternative to the current practices on our national

public forests; the return to true selection management which does not include fire, herbicides, or remove or control diverse competition. This system does allow the harvest of mature trees in a manner which will lessen roadbuilding, provide greater control of logging procedures, and thus reduce adverse impact on young growth. Most importantly, it will not change the nature of the original forest or its ecosystem.

Selection management provides the opportunity for the Forest Service to practice, indeed return to the primary duty that I was taught, that of forest protection, while monitoring a sustained yield without large-scale crown removal. Logs may be extracted with the least disruption, temporary or permanent of the native flora or fauna. It will mandate practices which create less siltation of our forests creeks and rivers and reduce aquatic kill. It will reduce blowdown and greatly lessen the terrible loss of those topsoils.

In my judgment, there is no reason why selection management cannot be utilized in every category of natural forest type.

I have only two addenda. You have a letter from the Arbor Day Foundation in which they will point out their dislike of removing diversity in the forests. I will ask you to place that into your record.

Mr. ROSE. Without objection, it is made a part of our record.

Mr. MYERS. Thank you, sir.

The only other addendum I have is something that has not been mentioned here today, and it is something that has, as I say, come down the pike. It is called diplodia. Diplodia, d-i-p-l-o-d-i-a.

What is it? How is it transmitted? Why does it strike fear in the heart of every forester who knows about it? We know it is a disease that strikes the hard yellow pines of the North, especially the black or Austrian pines, and reportedly scotch pine as well. It has not and perhaps cannot be contained.

From its origin on Long Island it has now spread to other areas of lower New York and down into New Jersey. We know it kills yellow pine. If we have the success with this, that we did with chestnut blight and the elm bark disease—Dutch elm disease—what will we have left? The only thing that protects us is total diversity, and the U.S. Forest Service is taking diversity away from us. They are raping the forest.

Aspen is often found in conjunction with boreal jack pine. In the Menominee Forest, which is also part of my testimony, and I ask that that be made part of the record, I have heard much that aspen cannot be raised—grown—except by clearcutting. That is false. There is no substitute for selection management. You go through and remove the aspen as they reach a particular and given DBH, at 4½ feet above ground level—called the diameter breast high. That is the proper controlling removal factor for each species on a given site.

Those are the factors that have controlled my forestry and will allow us to protect the forest crown, selecting those which are best able to be removed. It leaves the forest crown intact for later harvests without the dangers inherent in clearcutting.

Thank you.

[The prepared statement of Mr. Myers appears at the conclusion of the hearing.]

Mr. ROSE. Thank you very much.

I want to thank all the members of the panel for waiting. I apologize for this hearing going on for such a long time. If we have any further questions, we may send them to you, but if you want to provide other items for the record, we will hold it open for 10 days. Thank you all, very much.

Our last panel, Mr. Paul Frey, the State forester for Baton Rouge, Louisiana, on behalf of the National Association of State Foresters, Washington, DC, to proceed first; Mr. Wayne Brandt, executive vice president, Minnesota Forest Industries and Timber Producers Association; Mr. Tom Nelson, district resource manager, Sierra Pacific industries, Redding, California; Mr. D.J. [Joe] Collins, environmental and technical services manager, Timberlands Division, Westvaco Corporation, Summerville, South Carolina; and Mr. Daniel Dessecker, forest biologist, the Ruffed Grouse Society, Rice Lake, Wisconsin.

Mr. Frey.

**STATEMENT OF PAUL FREY, STATE FORESTER, LOUISIANA,
ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE FORESTERS**

Mr. FREY. Thank you very much, Mr. Chairman. I appreciate you moving me up. Hopefully I will catch that next flight.

Mr. ROSE. Let me say to you, all of your statements and anything you want to add to your statements will be part of the record, and we need to get the hearing record as complete as you want it to be. If you will give us the high points of your statement, we will add those as well.

Mr. FREY. That is what I intend to do, Mr. Chairman. Thank you, sir.

I could spend a good hour or two of your time rebutting much of the testimony I have already heard, but let me just summarize, I do represent today the National Association of State Foresters. This is the third time that NASF has testified on Congressman Bryant's proposed legislation, and basically our position and concerns have not changed.

We are concerned about H.R. 1164 because public land management policies impact State and private land management policy, both directly and indirectly. H.R. 1164's stated intent is "to conserve native biodiversity and protect all native ecosystems against losses resulting from clearcutting and other forms of even-age logging on Federal lands."

This statement is premised on two assumptions, both of which we believe to be mistaken. One is that biological diversity on the national forests, and on American forest lands in general, is decreasing. The other is that clearcutting and other forms of even-aged management are not sound forest practices. Neither of these assumptions has any basis in fact, and H.R. 1164 represents an attempt to legislate forest resource management and policy that has no scientific basis.

NASF is unequivocally opposed to this bill. Enactment of H.R. 1164 would be irresponsible public policy in addition to unsound forest management policy. It is not based on sound science, and it does the American public a disservice by promoting ideas about for-

estry which are not true and would increase pressure on States and localities to enact similar laws.

Further, H.R. 1164 does not contribute positively to enlightening the American public about the management of their resources, and it unfairly ties the hands of those charged with managing them. It sends the wrong message for the wrong reasons.

We encourage the subcommittee to continue examining management practices on public and private forest lands. Resource managers are professionals and need to be guided by what is technically and scientifically sound and by public input at the most local level.

Good forestry in this country depends upon sound policies at the Federal level, and strong support of good forestry on State and private lands is essential. This is not good public policy and NASF is officially now on record opposing this bill, sir.

Thank you much for your indulgence.

[The prepared statement of Mr. Frey appears at the conclusion of the hearing.]

Mr. ROSE. Thank you, sir.

I only have one question for you. I have a little girl at home who is 6 years old. She has watched Fern Gully about 10 times now. Now I am trying to be objective and give everybody an opportunity to talk in this subcommittee and then we will congeal things, but I don't try to tell the members how to think, but you understand the impact that Fern Gully has on my daughter and millions of other children like her, don't you?

Mr. FREY. I do, and I have seen it myself.

Mr. ROSE. I am not asking you to comment on it. If you want to, you go right ahead.

Mr. FREY. Let's say that I would—and this is a personal answer, not an NASF response—but I think that Fern Gully and some of the shows that have made national news media have done a disservice, again, to the public by not looking at the entire total picture.

We have a number of conservation education programs in place that we as an association support. Project Learning Tree is one of them, and we are in fact telling the schoolchildren of this country a little about it, more about what happens in the real world.

Mr. ROSE. I am sure you are, and I am not criticizing, I am just saying that the battle of the young mind is being waged out there or the intention to make them understand a particular situation, and I just want you to be aware of it.

I am not aware that an expanded information base equally as attractive to watch as Fern Gully is being offered. You agree with me on that?

Mr. FREY. We are working on some options, sir.

Mr. ROSE. I am not trying to stir up a fight. I am just saying that when I see one man fighting—come into town in court in a Cadillac and the other one on a mule, you understand, I see a certain imbalance.

Mr. FREY. This doesn't directly answer that question, but I got to thinking when I heard some of these other professionals' testimony in regard to this bill, I kind of liken it, being a fellow southerner, to looking at this from another trade, and let's say we are

talking about eliminating a tool in a forester's kit, that tool being even-aged management. I don't like the sound of a hammer when carpenters are building a home, but we don't take the hammer out of the tool bag. We have to have a number of options there.

Clearcutting and even-aged management has a visual impact, and that is the big negative. However, that visual impact, a young lady had some slides that depicted a number of clearcuts. We can in fact put together a collage of slides that showed areas that have been clearcut as few as 3 and 4 years ago, and to the untrained public eye no one would have realized that was a clearcut.

Mr. ROSE. I spoke to the North Carolina Foresters Association the other day in Wilmington, I didn't talk about this, but I am well aware of the great valley of diversity that exists on this issue. And I am just saying Fern Gully and Tales of a Forest and other things that our children are watching today are very beautiful and compelling, and if there is something left out of them that you think young people should be also aware of, they ain't getting it today, that is all I am saying.

I am not choosing sides, I am just saying they ain't getting it. Somebody else is providing the information, and you may be excused, and good luck getting home.

Mr. FREY. Thank you, sir.

Mr. ROSE. Thank you.

Next is, Mr. Wayne Brandt, executive vice president, Minnesota Forest Industries and Timber Producers Association of Duluth.

STATEMENT OF WAYNE E. BRANDT, EXECUTIVE VICE PRESIDENT, MINNESOTA FOREST INDUSTRIES AND TIMBER PRODUCERS ASSOCIATION

Mr. BRANDT. Thank you, Chairman Rose.

I, too, will be brief. I do have a tape which I would be willing to send you that may not be as attractive as Fern Gully is, but it has talking deer on it and a voyager and talks about some of those issues, and we will send it along for your 6-year-old. My 5-year-old likes it.

Briefly, Minnesota Forest Industries represents primary manufacturers of forest products, Timber Producers Association represents loggers from throughout the State, some of whom operate in tree species where selection logging is appropriate, and some of the fine hardwoods in the southeastern part of the State and many of whom are involved in the management and clearcutting in other parts of the State.

You have heard plenty of rhetoric today and you have my written statement. Clearcutting isn't good, it isn't bad. It is, as Mr. Frey said, it is one of the tools that is in there. In my State we happen to have a lot of species that grow—that are best suited to clearcutting because of their shade and tolerance, and the need to get the direct sunlight down on them.

You have heard plenty on silviculture. I am not going to go into that. One of the things that may be a little different in Minnesota that we haven't heard today, it does relate to aspen, we have talked a bit about aspen, aspen regenerates naturally. Once it gets opened up, it suckers and sprouts from the roots and the stumps. I am not a real tall fellow, but a couple of years, 2 years after you

go back to an aspen stand it is going to be up over my head height. It grows quite rapidly and quite vigorously.

A number of things have been said today about diversity in the forests with the different trees. Minnesota is in the process of completing a very comprehensive study that was alluded to earlier. It has been a 4-year process. The State has spent \$1 million on it. They have had some 60 scientists produce 5,000 pages of analysis.

One of the issues that was extensively looked at was the composition and the diversity, if you will, within the tree species in between the stands here in Minnesota and where they are apt to be going in the future.

That study concludes that it cannot predict—does not predict that there is going to be any loss of that diversity, either within the stands, or between the stands, between different types of species. And it was studied very extensively, primarily by the academic staff at the University of Minnesota.

That is not a surprising conclusion to us. It tracks with additional data and studies that have been done by the Minnesota DNR over time, particularly on aspen. Aspen is as it naturally occurs contains about 30 percent other types of trees within the stand.

What the DNR has found in its research is that after those stands are harvested and get up to the age of about 20 years, that they too then contain about 30 percent of other species of trees.

I think that as we looked at and studied these issues in the State of Minnesota, the issue for diversity has been primarily—it has been primarily of those concern, is the issue of forest land conversion, allowing forests to be taken out of a forested state and cleared and converted to other uses. That is not forest management and that is not clearcutting. Those stands, when they are harvested, need to be regenerated. In my State, they are.

But the greater concern is allowing forests to be put into other uses. One issue that is of concern to many loggers that hasn't been mentioned yet today and is not in my written statement is the issue of safety.

The industry, the logging industry, has put a fair amount of time and a substantial amount of money into getting loggers off of the ground. It is inherently much more dangerous for loggers to be on the ground with chain saws harvesting individual trees as opposed to being in the cab of a mechanized feller.

So if H.R. 1164 were to be passed and all the loggers were required to be out on the ground with chain saws as opposed to in protective equipment, the incidence of injuries in the logging community, my guess is, is going to go up very substantially. That is a big concern to my members.

Couple of wildlife topics. And Mr. Dessecker is here to speak to grouse. But in Minnesota, the only large, what we call large clearcuts, are done for management for moose, to provide—and I am no wildlife biologist, and I don't really understand why moose like the big areas, but they do.

So on one of the national forests in Minnesota, they actually do some harvests that are up to 200 acres to provide the habitat that those moose want.

Another wildlife concern relating to H.R. 1164 in Minnesota has to do with one of our threatened species, which is a federally listed threatened species in Minnesota, the timber wolf.

The recovery plan for the timber wolf, which has been very successful and has led to substantial increases in wolf populations to where packs are now beginning to move outside of their range in the State of Minnesota and into other States, the prescriptions in the recovery plan for the wolf are twofold: one, to ensure that there are low human densities. I don't know if you have been to northern Minnesota, but we have fairly low human densities in northern Minnesota. So that is not a large problem.

But the other part of the plan that we can actually affect is to provide the habitat for what the wolves eat. And what the wolves eat are deer and moose. And the way the recovery plan requires certain forest lands, and particularly national forest lands to be managed, is to provide the habitat for white-tailed deer, which is done through clearcutting aspen so that the wolves can have something to eat.

It is a pretty simple equation, but it has been very successful in maintaining and providing the opportunity for the timber wolves to recover.

Finally, on the overall topic of ecosystem management, which you asked to be touched on a little bit, I don't know that any of us can define where the Forest Service or anyone else is going with ecosystem management. I am not sure that the science is well enough developed. But my sense of it is that we are looking at operations that are a little lighter on the land, that what we are looking at could do some things more of an interdisciplinary fashion, to provide more multiple resource management regimes, that we are looking at desired future conditions, where ought the forests be heading for what is good for the forest, and that we are looking at area controls versus volume targets or outputs.

That essentially describes the way the Minnesota Department of Natural Resource has been managing their lands in Minnesota for quite some time.

If you have any questions, I would be happy to respond.

[The prepared statement of Mr. Brandt appears at the conclusion of the hearing.]

Mr. ROSE. I have enjoyed listening to what you had to say. Just make sure our record reflects all the points you want us to bring to the attention of the full committee and the Members of the House. Thank you.

Next is, Mr. Tom Nelson, resource manager, Sierra Pacific Industries.

STATEMENT OF TOM NELSON, DISTRICT RESOURCE MANAGER, SIERRA PACIFIC INDUSTRIES

Mr. NELSON. Thank you, Mr. Chairman and members of the subcommittee. I would like to talk about four points which are not in here which I jotted down through the day today, three of which are not in my statement and one of which I would like to emphasize somewhat, based on some of the things I heard here today.

I represent a company that is the largest landowner, timberland owner in the State of California. We are also the largest purchaser

of Federal logs in the State of California. So it puts us in somewhat of a unique position.

A couple of the things that I heard today that I wanted to maybe hopefully clarify and tie in with some of the things that Wayne just said.

There was a lot of talk today whether clearcutting is bad and selection is good, if that was your particular point of view, or vice versa, if selection is bad, clearcutting is good. I think that whole philosophy or that whole issue and H.R. 1164, in general, really misses the mark on that point. That really isn't the issue here, whether one system is better than another.

The real issue here should be biodiversity. And in order to achieve biodiversity, whatever you set for those objectives, we need to determine what is the mix of different systems to achieve that. And I haven't heard very much talk about achieving the objectives of biodiversity but more the classical arguments of this system is right and this system is wrong. So I wanted to reiterate that a little bit.

The second thing was that it is really odd for me to sit in this room and write silvicultural prescriptions. In addition to my other duties, I sit on the California State Board of Forestry. I was appointed there 2 years ago by Governor Wilson.

And what we generally do is make regulations for private forest practices. One thing I learned very quickly was that there is a lot of diversity within the State of California.

Now magnify that by the Atlantic Ocean to the Pacific Ocean, and to me it is somewhat ludicrous to sit in here and do what this bill is trying to do, set a site-specific silvicultural prescription for an entire continent.

So I wanted to bring that up, too.

And a third thing which has also been kind of watered down a little bit today, we keep talking about clearcutting and how this bill will have certain effects on certain ecological principles based on clearcutting. And when you say the word "clearcut," everyone in this room, no matter what your particular position on the environment is, has a mental picture.

I want to make sure that everyone understands, this bill does not just cover clearcutting and that mental image. It covers a lot of other even-age systems.

And I bring that up because, in a lot of cases, a clearcut is objectionable to certain parts of the public based on aesthetics or some loss in biological diversity or some other reason.

One way that we have found to be very successful in mitigating some of those concerns is to use another system to achieve the same thing. However, in a lot of cases that is an even-aged system, it may be a shelterwood system, it may be a seed tree system. But this bill would, in effect, take away that very mitigation factor which I thought we were using in quite a sensible fashion.

So I wanted to bring up the fact that we are not simply talking about clearcutting and the mud flows that I heard about and everything else. We are talking about all even-aged management.

And finally, the last point I wanted to make was when you get into biological diversity, there is a tendency in a hearing like this to equate biodiversity with old growth or preservation. And that is

not a common definition of biological diversity. It includes all types of serial stages, including early serial stages.

To give you an example, on our property we have over 400 species of wildlife. There is only a handful that require an older serial stage, and even those are questionable, that require an older serial stage of vegetation.

So it doesn't make a lot of sense to me to preserve the majority of this Federal land for a handful of species when the other 80, 90 percent of the species are going to have to go find a home on 15 percent of the land.

So I wanted to bring that part up, too. I appreciate the opportunity to talk to you.

[The prepared statement of Mr. Nelson appears at the conclusion of the hearing.]

Mr. ROSE. So just to emphasize, probably your main point to say in one bill that even-aged management is outlawed for the whole country, you think is, what, a little naive as a cultural practice that would—

Mr. NELSON. Yes. I don't know if I would say it is naive. I don't think it is very prudent to ignore the regional differences that you would be ignoring by doing this.

As a person who does public policy on a State basis, the test for me is always, if I can think of a reason that makes sense biologically as a forester, then I cannot, in all good conscience, write or vote for a regulation which would preclude that. And I think that is exactly what you would do with H.R. 1164. You could be precluding a sound silvicultural practice in one area of the country for no reason. And I don't think that is right.

Mr. ROSE. Next is, Mr. Joe Collins, environmental and technical services manager, timberlands division, Westvaco Corporation, Summerville, South Carolina.

Go ahead, sir.

STATEMENT OF D.J. [JOE] COLLINS, ENVIRONMENTAL AND TECHNICAL SERVICES MANAGER, TIMBERLANDS DIVISION, WESTVACO CORP.

Mr. COLLINS. Thank you, Mr. Chairman.

I grew up on the edge of the Monongahela National Forest in West Virginia, and have 32 years of forestry experience in South Carolina, Mississippi, West Virginia, and Virginia.

Westvaco purchases timber from the George Washington, Jefferson, Monongahela, Shawnee, and the Francis Marion National Forests to supplement wood supplies produced on our company lands and on other private lands.

We also rely on wood and bark residues generated by sawmills who purchase from these same national forests. In June of this year, the U.S. Fish and Wildlife Service honored Westvaco with a prestigious national wetlands conservation award.

We received a similar award a few years ago from the Department of the Interior for our general forestry management practices. These and other awards recognize the creative and sensitive management practices that we use on our own timberlands.

I would like to describe to you how some of the practices prohibited by H.R. 1164 are essential to meet our resource management goals.

The bill's blanket elimination of even-age management fails to recognize the unique local conditions and site requirements necessary to provide habitat and to produce needed wood products. Many tree species of economic importance to this country can only be produced by utilizing even-age management techniques.

Some of the most successful wildlife management efforts in this country have also relied on even-age forest management. Arbitrarily, eliminating clearcutting and other even-age practices as an acceptable forest management practice on national forests and other Federal lands will result in significant productivity losses for both timber and wildlife habitat.

Westvaco Corporation employs clearcutting and other even-age management techniques on our own lands, and on lands of our cooperative forest management partners, when necessary to achieve stewardship goals. We also utilize uneven-age techniques in situations where that is appropriate, particularly in the high-value Appalachian hardwood forests in West Virginia.

In other conditions, even-age management is the only way to economically produce southern pine and other important species.

Many of the highly valuable species on which we depend for the raw materials for the housing and construction industries in this country depend on economical production of species which can only be produced at the necessary levels by using intensive even-age management techniques.

Failure to meet our raw material demands domestically will result in increased imports from other countries, although most of the world lags far behind the United States in the practice of environmentally sound forestry.

Even-age conditions also have been highly effective in promoting increases in the population of many forest-dwelling wildlife species, including ruffed grouse, wild turkey, white-tail deer, elk, and some species of neotropical migratory birds.

Even-age management provides an indispensable tool for managing for endangered species.

Even-age management techniques can be compatible with the protection of threatened and endangered species, and numerous examples exist across this country on both private and public lands.

We have been very successful in protecting and increasing populations of the southern bald eagle and the red-cockaded woodpecker in our southern holdings.

Biodiversity in the landscape will best be obtained when land and resource managers have the option to use the most appropriate techniques to meet local situations. The combination of even-age and uneven-age techniques, without doubt, will result in the greatest diversity.

In addition to meeting biodiversity goals, these tools are needed to ensure forest health. For example, clearcutting is the most effective tool to recover particularly susceptible stands of mature hardwood trees on the leading edge of the gypsy moth advances and to slow the insect spread. Similarly, it is essential for treating stands

now affected by the southern pine beetle. Both the gypsy moth and southern pine beetle remain at epidemic levels in Virginia today.

The Forest Service has reassessed the application of clearcutting in the national forests. The number of acres clearcut annually has been greatly reduced over the past 5 years and a new direction was issued last year to reinforce this trend.

In 1987, the southern region clearcut over 105,000 acres. By 1989, this level had fallen to just over 67,000 acres and, by 1991, to 38,000 acres.

Additional legislation is unnecessary to ensure these trends continue. H.R. 1164 represents prescriptive legislation which will only confound ecosystem management efforts by professional managers.

H.R. 1164 ignores local conditions and forest management goals and will prohibit the very tools land managers must have to enhance diversity.

Clearcutting and other even-age methods have an important place in forest management. Given the shortcomings in the bill and our experience in forest practices, we at Westvaco Corporation must view H.R. 1164 as merely another extreme preservation tool to remove timber harvesting from the national forests.

I urge the committee to reject H.R. 1164.

Thank you for this opportunity to testify.

[The prepared statement of Mr. Collins appears at the conclusion of the hearing.]

Mr. ROSE. Thank you, sir.

The other day, I was in my congressional district, which has no public forests but has a lot of company-owned forests, and the International Paper Company people were showing me some wet-land-type problems that they were having in ditches and so forth. We went by an area, and one of the foresters said, now, these are our trees here; but they are not planted in rows here, because—but they are over behind it, because we determined that the public was offended by going through a forest that we owned and to see the trees growing in rows.

Now do you have any reaction to that? Is that similar to things that you have found?

I am talking about in your private areas.

Mr. COLLINS. We have had similar experience. We treat some particularly sensitive sites in the same way. As the pictures showed earlier today depict, clearcutting is not a particularly pleasing sight when it is initially done.

Mr. ROSE. I am not talking about a clearcut. Just the cultivation of the trees in a row like corn rows.

Mr. COLLINS. People object to that as well. They don't think that it looks particularly natural.

We also leave what we call buffer strips adjacent to a lot of well-traveled roads just to soften the impact of that kind of situation.

There is nothing to hide, there is nothing wrong with planting trees in rows. Some people in the public just don't like to see them planted that way.

Mr. ROSE. Thank you, sir.

Anything else you want to submit for the record, please do within the next 10 days.

Mr. COLLINS. Thank you, sir.

Mr. ROSE. Next is Mr. Daniel Dessecker, forest biologist, Ruffed Grouse Society, Rice Lake, Wisconsin.
Go ahead, sir.

**STATEMENT OF DANIEL R. DESSECKER, FOREST BIOLOGIST,
RUFFED GROUSE SOCIETY**

Mr. DESSECKER. Thank you, Mr. Chairman.

As a biologist who specializes in the ecology of forest wildlife, I am adamantly opposed to H.R. 1164. Let there be no doubt about that.

This bill would have a serious negative impact on the ability of forest resource management professionals to maintain critical components of various forest ecosystems.

The term "biodiversity" used in the title of this bill is one that has been used and misused about as much as was the term "change" during the 1992 Presidential election.

Biodiversity is more than simply big trees and mature forests. No one, no one with a thorough understanding of forest ecology, would ever suggest that even-age forest management and specifically clearcutting is always appropriate.

And, likewise, no one with a thorough understanding of forest ecology would ever suggest that even-age management, specifically clearcutting, is always inappropriate.

And as we have heard on numerous occasions today, forest disturbance is a component of forest ecology. Pitch pine in the East, jack pine in the Midwest, lodgepole pine in the West, aspen across the country: These communities will cease to exist as components of functional ecosystems on properties where even-age management is precluded. That, sir, is basic forest ecology. Failure to recognize this is due either to a lack of understanding or a lack of objectivity.

As a forest biologist who has spent a fair amount of my past experience dealing with forest songbirds, I get a little bit incensed when individuals hold up neotropical migrants as proof positive that every time you harvest the forest you are damaging that component of our forest wildlife.

Sir, 40 percent of the neotropical migrants that are currently undergoing significant population declines require young forest habitats. And that is specifically because we are seeing a decline in young forest habitats throughout the Eastern United States.

I have tables in my written testimony, documenting those facts; and they are referenced—the appropriate scientific citations reference these data.

You had mentioned Fern Gully. I, too, have a 7-year-old little girl. We watched that show one time together. And that is not going to be played on my television any more. It is a perception problem. It is not a biological problem.

Mr. ROSE. You understand, I am not speaking against the first amendment or free—I am just pointing out a particular—and your children and my children are irrelevant to this discussion.

Mr. DESSECKER. No, sir; they are not irrelevant.

Mr. ROSE. No. Our children are because we could train them to start chain saws at seven if we wanted to. You understand. That is beside the point.

It is the country, it is the children of the country are seeing this beautiful story that is very appealing. I am not arguing about the merits of it. I am just saying that if it leaves something out, and from the perspectives in here, it is not the full story.

Mr. DESSECKER. Absolutely.

Mr. ROSE. I am not criticizing it.

Mr. DESSECKER. I will criticize it.

Mr. ROSE. It is your right to do. The full picture is not there. And I doubt that Warner—I doubt that Disney is going to let you put—

Mr. DESSECKER. Disney doesn't like chain saws either, I suspect.

Mr. ROSE. Well, I don't know. I can't reach that conclusion. I am not trying to set up another fight for us to get in here.

But I am saying the battle of perceptions about what is right and wrong in the forest environment is being not only guided by what the media says, not only by a lot of information, I will be blunt with you. I don't think the quality of the information from the forest industry is anywhere close to as good as the pictures. OK? I am not calling it necessarily the total correct picture, but the pictures that are coming from the environmental community that has a right for their concerns.

In other words, they have attracted the attention of Hollywood and the filmmakers, and you haven't. And I am not criticizing you for it. I could observe that you got more hair than he does, but he has more hair than both of you. I am not trying to be critical. I am just making an observation. He uses his hormones in other ways. They all grow hair. I am not trying to pick a fight. I just want you all to get sensitive to this information flow that is going out.

Now I took some of your time so you keep on talking.

Mr. DESSECKER. Sir, we are indeed very sensitive to that perception. And that perception is understandable when you realize that we are dealing with an increasingly urban society.

As Leopold said, the biggest problem in not growing up on a farm is that people honestly believe that heat comes from a furnace and food comes from a grocery store.

We've got to get people to understand forest ecology and the forest industry, the hook and bullet groups, so to speak. The conservation organizations, we have done a pretty lousy job. We are one element of an environmental contingent. And our element, our spectrum, people from our end of the spectrum, haven't done our job, no question at all.

Public land managers today are striving to initiate philosophies on public lands that are consistent with ecological processes. And the Forest Service has called it ecosystems management. That is a goal that we must strive to attain.

But I think it is critical, sir, that when we strive to attain ecosystems management, we recognize that, as we provide direction to our resource managers, as we measure their accomplishments, we must realize that we cannot manage, nor can we monitor, an ecosystem.

We can manage ecosystem components and we can monitor ecosystem components, but we cannot manage an ecosystem. It simply won't work. And that is where forest resource professionals can in-

deed enter into the equation, because we have experience managing those components.

I am going to summarize, sir, very quickly. Secretary Espy at the North American Wildlife and Natural Resources Conference in March, here in Washington, stated that sound policy must be based on sound science.

H.R. 1164 and any similar attempt to preclude ecologically justified management options is rooted in bad science and would make bad policy.

Thank you.

[The prepared statement of Mr. Dessecker appears at the conclusion of the hearing.]

Mr. ROSE. I want to thank all of you for being here today and for your patience. This is an important record that we are putting together. I realize it has been done before. But there are 106 new freshman around here that have never been exposed to this particular bill and this particular issue before in this Congress. And we think this will be an important record for this debate.

Any comments from any of you?

Hearing none, this hearing is adjourned.

[Whereupon, at 4:05 p.m., the subcommittee was adjourned to reconvene, subject to the call of the Chair.]

[Material submitted for inclusion in the record follows:]

Remarks of the Honorable John Bryant
 Subcommittee on Specialty Crops and Natural Resources
 October 28, 1993

MR. CHAIRMAN: Thank you for scheduling today's hearing and for giving me this opportunity to discuss the very important issue of even-age management pending before this Subcommittee.

The Forest Biodiversity and Clearcutting Prohibition Act of 1993 has 77 cosponsors.

I want to start by saying that this bill does not deal with whether to harvest timber on public lands but how to harvest.

For some time I have been concerned about the Forest Service practice of clearcutting in our national forests. The Forest Service is conducting even-age management (clearcutting and its variants) on the vast majority of the 57 million acres of available commercial timberland in our national forests, as well as on other federally-owned forests.

Under even-age management, logger clear timber from a site, bulldoze the non-harvestable vegetation, scrape the soil bare, and replace the native biodiversity with a crop of commercial tree species. The result is that logging plantations replace the biological diversity of our native forests, eliminating habitat for forest wildlife and destroying recreational opportunities.

Clearcutting and the devastation that results from it are not necessary for harvesting timber. Under the environmentally preferable selection management system, harvesters mark individual trees scattered throughout an area and cut them for sale or culling, leaving an ever-improving stand to regenerate new trees naturally in openings created by the cuts.

Selection management is used by private foresters from coast to coast, for economic reasons and to maintain a healthy natural forest. According to forester Bill Carroll, the Forest Service could abandon clearcutting and shift to the selection system within a few months.

In 1976, Congress passed the National Forest Management Act, limiting clearcutting to situations when it is "determined to be the optimum method," and other even-age cuts to when "appropriate." The Forest Service has taken advantage of such discretionary language in NFMA and continued rampant clearcutting and even-age cuts in most national forests.

The environmental evils of even-age management include soil losses several times worse than under selection management, with nutrient losses sometimes twenty times as bad; sedimentation of streams, causing flooding and decimation of aquatic life; devastation of native biodiversity; drastic impairment of recreational values; increase of susceptibility to insects' disease, and acid rain; blowdowns of trees

along the edges of clearcut sites and within seed tree and shelterwood cuts; and worsening of the greenhouse effect by reducing carbon-storing, woody biomass for years after logging and by reducing the capacity of soil to hold carbon.

Forest Service researchers have reported that selection management is more cost efficient and enjoys a higher benefit/cost ratio than even-age management (1985 Crossett study, Arkansas). It avoids the high costs of site preparation and planting and produces a higher quantity and quality of sawlogs. Because this legislation does not attempt to limit loggings on federal lands, the agencies managing federal lands remain eligible to log as much timber under selection management as under even-age. There would be no negative impact on jobs dependent on federal timber. And, according to expert testimony submitted by Dr. Thomas Power, Chairman of the Economics Department at the University of Montana included in my written statement, the provision of H.R. 1164 banning roads in current roadless areas would have "minimal impact on jobs, locally or nationally."

On June 4, 1992, after the Agriculture Subcommittee on Forests, Family Farms, and Energy scheduled a hearing on the 1991 bill to ban even-age logging, Chief of the Forest Service Dale Robertson issued a directive to reduce clearcutting by 70%. The Forest Service made a big fanfare over this purported response to public objections. But the directive specifically permitted continued use of seed tree, shelterwood, and other variations of even-age logging. The Chief labeled the move "ecosystem management." You can put pearls on a hog, but it's still a pig.

So how did regional forest service foresters respond? Where they made any reductions in clearcutting at all, they merely shifted to seed tree, shelterwood, heavy salvage, large-group selection, openings for deer, and other forms of even-age logging -- all merely two-stage clearcuts and just as destructive to our environment. To be fair, here and there, some districts announced real changes -- a tiny fraction of true selection management.

A survey by the Forest Reform Network verified what I am saying.

The Forest Service's new policy of ecosystem management sounds great on paper and in agency testimony to Congress. But on the ground, in the forests, it is nothing but window-dressing. Words alone do not a policy make. It is just one more effort by federal bureaucrats to make Congress believe that they are turning over a new leaf. The agency wants to avoid any reform with teeth in it. In a statement attached to my testimony, retired Forest Service District Ranger Bob Padgett gives his opinion that the Service won't stop even-age management without being forced to do so by Congress or the courts. The agency got its chance with the National Forest Management Act of 1976, which allowed considerable agency discretion. The Forest Service has long abused that discretion. The time has come to put a stop to the abuse once and for all.

I direct your attention to the declaration of Dr. Robert F.

Mueller, attached to my written statement, which confirms many of the points I've been making including Padgett's assertion that legislation is necessary to stop the Forest Service from inappropriate clearcuts.

In recent decades the Forest Service has depleted this country's biodiversity in nearly 70% of our federal commercial timberland through various forms of even-age logging. At its current rate, the agency would convert the remainder of our unprotected stands to even-age before the year 2010. Instead of varied, bio-diverse forests, we will have monotonous timber plantations from coast to coast.

I base this estimate on Texas figures of the Forest Service which I placed in the record of hearing on June 16, 1992, and on additional national figures obtained from the Forest Service. Although clearcutting, as such, is decreasing, other forms of even-age logging are increasing, perhaps proportionately to the decrease in clearcutting. There are realistic alternatives.

What remains of our vanishing forest biodiversity is mainly in our federal forests, and most of that is in the remaining 30% of our federal commercial timberland not yet turned into even-age fields. Even if, by other measures, we preserve millions of acres of the federal timberlands in the Pacific Northwest, only seven of the 48 forest ecosystems found in our national forest system would be protected. Enactment of the Forest Biodiversity and Clearcutting Prohibition Act, however, would save all of the existing forest ecosystems -- 48 nationwide -- almost seven times as many.

These ecosystems are important to human existence and survival. They are sources of foods, fibers, medicines, and other products. They also provide valuable research areas. With every year that they diminish, our forest crisis becomes more alarming. Our future becomes more impoverished.

After eight years of litigation, three environmental groups won a preliminary injunction against the Forest Service on May 12, 1993, to ban even-age logging in the national forests in Texas.

Judge Robert M. Parker found that near-total even-age practices were likely to impair key resources, in violation of the National Forest Management Act. Eleven citizen organizations, including major national environmental groups and grassroots groups, asked the U.S. Government in writing on June 23 to use this decision as a basis for banning or vastly reducing even-age logging in national forests. Unfortunately, the Forest Service and the Department of Justice chose to appeal Judge Parker's decision to prevent its application anywhere.

Since the introduction of The Forest Biodiversity Act in the 102nd Congress, my fellow Members have asked numerous questions about the bill. I would like to take a few moments to respond to some of those questions.

A question has arisen about clearcutting slash pine and planting longleaf pine as a habitat for the Red-cockaded woodpecker. Tom Hayes

will testify later today and is among the experts who affirm that clearcutting slash pine sets back Red-cockaded habitat by at least 80 to 100 years. It is better to thin the slash pine, leaving any existing longleaf pine. Selection management is far superior for the preserving the Red-cockaded woodpecker, for maintaining a vibrant ecosystem, and for enhancing timber productivity.

One colleague asked whether, under selection management, it is possible to regenerate forests perpetually with substantial components of various oak species. Yes. Selection managers are doing this in various regions from coast to coast. Examples include red oak in Menominee Forest, Wisconsin, and various oak species in Pioneer Forest, Missouri, Toliver's Forest in Indiana, Wilmon Timberlands in Alabama, Gibbs Brothers in Texas, and Charm's Forest in Oregon.

The Forest Service alleges that selection logging won't work with regard to slash pine, oaks, aspen, lodgepole pine, or other specific ecosystem types. The Forest Service knows that if it can open discretionary loopholes in our bill, they can slip through holes to evade enforcement as they have done under the National Forest Management Act. The compelling evidence is to the contrary. There are many examples of selection management used on Douglas Fir and Aspen. I refer my colleagues with similar questions to the statement of Dr. Timothy Foss and Dr. Robert Zahner, included in my written statement; and the book Clearcutting: A Crime Against Nature, Eakin Press, by Edward C. Fritz.

Another colleague suggested to me that our existing wilderness system is adequate protection for biodiversity. Actually, the locations of our designated wildernesses are often higher, colder sites that do not adequately represent the full biodiversity even of those few, isolated regions, and some ecosystem types are not represented in the wilderness system at all. As I discovered in the legislative battles that resulted in enactment in 1984 of my "Texas Wilderness Act," wilderness designation is a compromise that rarely results in saving from development more than a fraction of unique areas that especially deserve preservation. Of the conservative 65,000 acres we originally sought, only 37,000 were ultimately designated wilderness areas.

It is not enough to preserve one or two examples of each ecosystem type. Each ecosystem type varies from place to place.

This Forest Biodiversity bill provides a way for our nation to continue commercial timber production in non-wilderness areas of our federal forests and other public lands while protecting ecosystems not covered, nor likely to be preserved under the Wilderness Act. We are now logging 65 million acres of federal forests by the most destructive methods of continuous logging ever devised, ruining their biodiversity. About 57 million acres of commercial timberland are being managed for timber sales by the Forest Service. Millions more are eligible to be included in the same logging base, referred to by the Forest Service as "suitable" for logging. We can and should save what biodiversity we have left by shifting from even-age logging to selection logging, with

restraints to assure protection of biodiversity.

I have been asked whether this bill prohibits salvage of dead trees. It prohibits heavy salvage, which means taking a substantial portion of dead and fallen trees. Now that public sentiment is so aroused against clearcutting, the Forest Service is using so-called heavy salvage as a replacement strategy. They sell most of the saleable trees, whether damaged or not, so the site looks like any other clearcut. Then they grow a commercial species in plantation style on the same site. This is happening in national forests throughout the country. Almost any kind of windstorm, fire, or disease is used as an excuse for heavy salvage. It is just another trick to keep up the cut and increase regional forest service revenues and, therefore, budgets. Other agencies do the same.

Almost every natural disaster leaves numerous living trees. Even dead snags are valuable to a living ecosystem. It wouldn't be so bad if the federal agencies removed only the dead trees, left living trees intact --- leaving the site substantially unimpaired for natural regeneration. They do not. Generally, the site is simply cleared -- dead trees, living trees, undergrowth, topsoil, everything. Thus, the need to protect our forest ecosystems from heavy salvage is as imperative as protecting them from the menace of clearcutting.

One Member asked whether our bill would prevent thinning. No, it does not stop thinning. But it does require that thinning be done so as to perpetuate the stand, not to set up a subsequent clearcut.

In response to a suggestion made by a fellow Member, I have combined the definition of "even-age logging" with that of "even-age management" in the bill. As I have said, even-age logging is part of even-age management.

Mr. Chairman, some argue that this legislation is too prescriptive. I make no apologies for its prescriptive nature. Current forest management is impaired by bureaucratic greed that jeopardized a diminishing natural heritage. Strong medicine is required. After working on this issue for more than four years and traveling through forests around the nation, I firmly believe that legislation without loopholes or exceptions is essential if Congress expects to realize true forest management reform.

Let me also point out that H.R. 1164 would be far more enforceable than the National Forest Management Act because the NFMA has no enforcement provision. It took eight years through one lawsuit to obtain a preliminary injunction under NFMA in a single state, and the Forest Service has appealed that decision. How long will it be before the appeals are done and the injunction becomes permanent? How long would it take for the courts to ban destructive, even-age management in all 50 states? Our finest examples of native biodiversity would be long gone by then.

In contrast, H.R. 1164 contains a clear ban on even-age management and includes a citizen suit provision that would facilitate

enforcement.

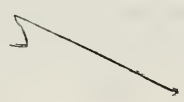
Finally, as a member of the House Budget Committee, I firmly believe that requiring the Forest Service and other federal agencies to shift to the more cost-efficient selection management system on our public lands would save the country and its taxpayers money.

The implementation of selection management practices in our nation's public forests, would, in addition to its economic benefits, indefinitely preserve much of the forests' natural beauty and indigenous wildlife for future generations.

Congress, not the Forest Service, should determine how our forests and other natural resources are managed. That is what the public rightly expects. It is our job.

I ask the members of the Subcommittee to work with me to end clearcutting in our national forests and other public lands before it is too late.

I appreciate your attention to the testimony of the witnesses that will follow me and I will be happy to respond to any questions you may have.



STATEMENT ON H.R. 1164, FOREST BIODIVERSITY
AND CLEARCUTTING ACT
October 18, 1993

By Thomas Michael Power, Ph.D.
Professor and Chairman, Economics Department
University of Montana

I present this statement in support of H.R. 1164. The attached vitae capsulizes my background.

I particularly address the effect, which is minimal, of two sections of H.R. 1164 on timber employment. Although the bill, generally, would merely shift the system of timber management in federal forests from even-age to selection, the two sections that I address could prevent a spread of logging in roadless areas.

In September, 1992, I published a report, "The Timber Employment Impact of the Northern Rocky Ecosystem Protection Act in Idaho Montana, Oregon, Washington, and Wyoming." This report concluded that the economic cost of preserving about 20 million acres more of wildlands than the Forest Service or the region's political leaders support would amount to the number of jobs typically created in any three-week period.

There is reason to believe that the findings in the September, 1992, report that cessation of logging in federal forests of the Northern Rockies would have minimal impact on timber employment would be applicable to proposed road closures in other regions.

The Northern Rockies roadless areas include many highly productive timber stands in several states, comparable to much of the productivity in much of the Pacific Northwest. The Northern Rockies Ecosystem is generally more productive than the Southern Rockies. The impacts in the Northern Rockies would indicate a minimal jobs impact of preserving roadless areas in the West, where the vast majority of roadless area acreage occurs.

Therefore, the study of the Northern Rockies is relevant to Sec. 3(c)(5) of H.R. 1164, (p. 14) and 4(b)(5), p. 21, of H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act.

These sections provide that no roads shall be constructed or reconstructed in any roadless areas of the Forest Service and Bureau of Land Management.

These roadless areas are mainly in the Western States. These include a large bloc in the Northern Rockies Ecosystem.

With these considerations, it is my opinion that the closing of roads in all roadless areas would have minimal impact on the job situation in the location involved or nationally.

EXECUTIVE SUMMARY

**The Timber Employment Impact of the
Northern Rockies Ecosystem Protection Act
in
Idaho, Montana, Oregon, Washington, and Wyoming**

by

**Thomas Michael Power
Professor and Chairman
Economics Department
University of Montana
Missoula, Montana
59812**

September, 1992

ACKNOWLEDGEMENT

The research for the four studies covering the five-state region of the Northern Rockies which are summarized in this document was carried out as part of a larger project studying the transformation of the economies of the Rocky Mountain states away from primary reliance on extractive, natural resource industries. Support for this segment of the study came from the **Voice of the Environment**, the **Alliance for the Wild Rockies**, and the **University of Montana**. Of course none of these funding sources are responsible for the contents of the reports or the conclusions reached.

EXECUTIVE SUMMARY

**The Timber Employment Impact of the
Northern Rockies Ecosystem Protection Act
in Idaho, Montana, Oregon, Washington, and Wyoming**

1. Introduction

The primary public concern about protecting unroaded wildlands by prohibiting or restricting commodity production on those lands is the impact on local employment. The widely held view is that protecting the natural character of these landscapes will take desperately needed natural resources from industries that dominate the local economies. As a result, the local economies and local residents will be impoverished. Whatever may be the environmental advantages of such wildland protection, the local economic impacts are assumed to be negative and large. This presents local residents as well as the nation as a whole with a "tragic choice": They can preserve unique and valuable ecosystems only at the cost of seriously damaging the economic well-being of those living adjacent to these natural areas.

The analyses contained in four separate reports on the employment impact of protecting roadless areas in Idaho, Montana, Eastern Oregon and Washington, and Northwestern Wyoming shows that not only is this not the case but the opposite is more likely to be true: Protected landscapes are a crucial part of the economic base of the Northern Rockies and these high quality natural environments have provided ongoing vitality in the local economies of the Northern Rockies states despite the ongoing decline in employment in extractive industries. Further damage to that landscape through extension of roaded logging into the Northern Rockies' remaining wildlands threatens the region's economic future while providing very few current jobs.

2. The Northern Rockies Ecosystem Protection Act

Natural areas cannot be protected in a way that retains their natural wildland and wildlife characteristics if they become isolated islands cut off from other natural areas by intensive human activity. Such "island wildernesses" overtime will deteriorate and lose their ability to support healthy wildlife populations. Because of the need to link such natural

areas together and protect whole ecosystems, a more comprehensive approach to wilderness protection has been offered in the Northern Rockies Ecosystem Protection Act (NREPA).

NREPA recognizes that the ecosystems that support unique wildlife populations in the Northern Rockies, including the grizzly bear, timber wolf, and caribou, are being fragmented in a way that threatens both these wildlife populations and the nation's premier national parks, Glacier and Yellowstone. To halt this fragmentation, NREPA proposes to protect virtually all remaining roadless areas in the Northern Rockies from roaded development and commodity production. It also seeks to rehabilitate crucial wildlife corridors linking roadless areas together. Finally, it seeks to protect riparian corridors along the region's major streams and rivers. In total, NREPA would protect about 20 million acres of wildlands and 1400 miles of wild and scenic streams.

The most often repeated objection to preserving all of these remaining wildlands is that it would cripple the economies of the Northern Rocky Mountain states by eliminating timber harvests that are crucial to one of the region's primary export industries. To critically analyze these claims, studies were conducted of the timber employment impact of extending protection to virtually all of the remaining roadless areas in the Northern Rockies states. Individual studies, each about 70 pages in length, were carried out for National Forest economic impact areas in Idaho, Montana, Eastern Oregon and Washington, and Northwestern Wyoming. This executive summary briefly presents the results. The individual reports are listed at the end of this summary.

3. General Conclusions on the Timber Employment Impact of NREPA

The remaining roadless areas of the Northern Rockies are far more important to region's economy left in their natural state than they are as sources of raw materials. The future vitality of the economies of the Northern Rockies states is tied to its ability to attract and hold people. One of its most important "resources" in doing this is its unique natural landscape and the wildlife and recreation that landscape supports.

Increasing amounts of economic activity in the state are "landscape-related" in the sense that that economic activity is supported and enhanced by the high quality natural environment tied to our wild landscapes. At the same time, as important as our extractive industries are, they will not be sources of economic vitality in the future. Extractive industry has been a declining source of jobs and income during the 1980s and this relative and absolute decline can be expected to have an ongoing negative impact on the vitality of the

Northern Rockies' economies. See Figures 1 and 2. The region's future hope lies in cultivating those economic forces operating to offset this decline. The natural amenities associated with the Northern Rockies' landscape represent such a positive economic force.

This is not merely wishful thinking or an academic hypothesis. The centers of vitality in the economies of the Northern Rockies region have been those areas known for their high quality natural landscapes and recreational opportunities: the Flathead Valley and the Bozeman areas in Montana, the Jackson, Cody, and Sheridan areas in Wyoming, the Coeur d'Alene, McCall, Sun Valley areas of Idaho, and the rural northeast corner of Washington, to name just a few. These areas have shown substantial economic vitality while their extractive economic bases have contracted. Clearly their economic vitality is not tied to extractive industry but, rather, to their attractiveness as places to live, work, and do business. It is these attractive natural amenities that need to be protected if the regions' economic vitality is to be enhanced. Sacrificing these economically important natural amenities in order to temporarily support an extractive industry in decline is the opposite of economic development. It is a prescription for ongoing economic decline.

4. Specific Conclusions about Timber-Related Job Impacts

If wilderness protection were to be extended to virtually all of the remaining U.S. Forest Service (FS) roadless areas in the Northern Rockies, about one-tenth of one percent of all jobs in the region would be directly lost due to reduced timber harvests compared to the timber harvest now planned by the FS. When the indirect and induced effects of these direct job losses are taken into account, the total employment impact would be the loss of about one-quarter of one percent of total employment. Of the over one million jobs in the region, approximately 1,400 would be directly threatened. With normal job growth as seen in the region over the last decade, this direct job loss would be made up in less than a month, about three weeks.

That is, the economic cost of preserving about 20 million acres more of wildlands than the FS or the region's political leaders support is the loss of the number of jobs typically created in any three week period.

The Table 1 below shows the distribution of these jobs across the various national forest economic impact areas in the Northern Rockies. The economic areas studied were those defined by the FS as directly affected by forest management activities on the national forests listed. Except for the towns of Boise, Great Falls, and Billings, no metropolitan counties were included. The economic impact areas are largely rural counties in the

Table 1

Employment Impact of Northern Rockies Ecosystem Protection Act

National Forest	Direct Timber Jobs Lost	% of Total Employment Lost	Weeks of Normal Job Growth to Replace	Total of Direct&Indirec Jobs Lost	% of Total Employment Lost	Weeks of Normal Job Growth to Replace
MONTANA						
Lolo	80	0.16%	4	249	0.50%	12
Bitterroot	13	0.02%	1	33	0.06%	1
Gallatin	28	0.08%	2	82	0.23%	5
Helena	5	0.01%	0	20	0.02%	1
Beaverhead	28	0.38%	16	85	1.16%	48
Custer	0	0.00%	0	0	0.00%	0
Deerlodge	6	0.02%	12	21	0.08%	42
Kootenai	17	0.14%	11	31	0.26%	20
Lewis&Clark	10	0.01%	0	29	0.03%	1
Flathead	21	0.03%	1	68	0.08%	2
Total Montana	208	0.06%	2	619	0.16%	5
IDAHO						
Clearwater	289	0.57%	17	577	1.15%	34
Id. Panhandle	213	0.37%	6	426	0.74%	11
Nez Perce	104	0.31%	10	208	0.63%	20
Boise	56	0.04%	1	113	0.08%	1
Caribou	15	0.01%	0	31	0.02%	1
Challis	0	0.00%	0	0	0.00%	0
Payette	82	0.39%	16	164	0.79%	32
Salmon	26	0.17%	5	52	0.34%	10
Sawtooth	15	0.02%	1	30	0.03%	1
Targhee	12	0.01%	0	25	0.02%	1
All Idaho NF	813	0.16%	4	1625	0.31%	7
EASTERN WASHINGTON AND EASTERN OREGON						
Colville	117	0.63%	12	233	1.25%	24
Malheur	84	1.02%	22	169	2.04%	44
Umatilla	62	0.07%	2	123	0.14%	5
Wallowa-Whitman	37	0.16%	5	74	0.32%	9
Total: E.Wa. & Or.	300	0.21%	6	599	0.43%	13
NORTHWESTERN WYOMING						
Big Horn NF	9	0.04%	1	17	0.07%	3
Bridger-Teton	25	0.07%	2	49	0.14%	4
Shoshone NF	9	0.06%	2	18	0.13%	3
Total: NE Wyo.	42	0.06%	2	84	0.11%	4
TOTAL	1363	0.12%	3	2928	0.26%	7

SOURCE: Appendix A of the individual reports listed at the end of this Executive Summary.

Table 2

The Percentage of NREPA-Protected Lands
That Are Suitable for Timber

National Forest	Percent of NREPA Protected Lands That Are Part of the Suitable Timber Base
MONTANA	
Lolo	30%
Bitterroot	22%
Gallatin	16%
Helena	15%
Beaverhead	12%
Custer	23%
Deerlodge	21%
Kootenai	22%
Lewis & Clark	13%
Flathead	20%
Total Montana	18%
IDAHO	
Clearwater	45%
Id. Panhandle	50%
Nez Perce	36%
Boise	17%
Caribou	3%
Challis	3%
Payette	10%
Salmon	10%
Sawtooth	1%
Targhee	51%
All Idaho NF	21%
EASTERN WASHINGTON AND EASTERN OREGON	
Coville	47%
Malheur	36%
Umatilla	32%
Walla-Walla-Whitman	21%
Total: E.Wa. & Or.	26%
NORTHWESTERN WYOMING	
Big Horn NF	28%
Bridger-Teton	10%
Shoshone NF	8%
Total: NW Wyo.	11%
TOTAL	20%

Northern Rocky Mountains.

These employment impacts were estimated by using Forest Service data on the "suitable timber" acreage in current roadless areas. The impact of removing these acres from the suitable timber base on the annual allowable sale quantity and the long term sustained timber yield of the forest was analyzed. Forest Service estimates of the total direct, indirect, and induced employment associated with each million board feet of timber harvested were used even though they are based upon 1970s lumber mill and timber harvest technologies. These employment multipliers were then used to convert the reduced timber harvest to reduced employment.

It is important to keep in mind that these are not net job losses. These are the jobs that may be lost in the timber-sector. Offsetting these job losses are the on-going gains in employment associated with protecting the landscapes that have been the primary source of vitality in the economies of the Northern Rockies.

5. Why The Timber-Related Job Impacts Are Small

- a. **Most roadless areas in the Northern Rockies are not suitable for timber management and therefore are not part of the FS timber base.** The FS has found 80 percent of these roadless acres to be unsuited for timber management. That 80 percent can be put off limits to timber harvest with no impact on the wood products industry. See Table 2 for a listing of the percentage of the NREPA-protected roadless areas that are part of the suitable timber base.
- b. **The primary connection between national forest lands and the local economy often is not through timber harvest but through recreation.** Timber harvest from public lands often represents a very small part of the local economy. Tables 3 and 4 show this for Montana and Wyoming. In Montana, on six of the ten national forests, recreation and wildlife activities are responsible for over two-thirds of the national forest-related employment while timber harvest was responsible for less than a quarter of the forest-related employment. Overall, national forest timber harvests were responsible for less than one percent of total employment in the national forest counties.

In Wyoming, timber harvest is responsible for only six percent of forest-related employment and eight percent of forest-related income. Recreation and wildlife activities are responsible for about three-quarters of forest-related

Table 3

Montana National Forest-Related Employment: Timber v. Recreation

National Forest	Timber-Related Employment	Percent of Total Forest-Related Employment Timber-Related	Recreation & Wildlife-Related Employment	Percent of Total Forest-Related Employment Rec-WildLf Related
Lolo	407	43%	528	56%
Bitterroot	159	51%	147	48%
Gallatin	82	8%	880	90%
Helena	41	25%	110	66%
Beaverhead	71	17%	274	67%
Custer	12	3%	332	80%
Deerlodge	72	12%	405	68%
Kootenai	1037	70%	432	29%
Lewis & Clark	52	15%	278	79%
Flathead	1021	80%	255	20%
Total Montana	2954	43%	3641	53%
		NF Timber-Related as % of Mt. Total		
Mt. NF Counties		0.78%		
Total Employemen	378,440			

Source: Gorte, Ross W., 1989, The Economic Impacts of Enacting alternative Wilderness Proposals for the National Forest in Montana, Congressional Research Service, Library of Congress, Table 18.

Table 4

Northwestern Wyoming National Forest-Related Employment and Income
by Source and Activity

	Saw Timber	Recreation Wildlife	Grazing Range	Other	Total
Direct Employment					
Bighorn NF	48	753	255	66	1108
Bridger-Teton NF	75	1275	83	49	1482
Shoshone NF	97	943	93	47	1180
Total: 3 NFs	220	2971	431	162	3770
% of FS-Related jobs					
Bighorn NF	4.3%	68.0%	23.0%	6.0%	100%
Bridger-Teton NF	5.1%	86.0%	5.6%	3.2%	100%
Shoshone NF	8.2%	80.0%	7.9%	4.0%	100%
Total: 3 NFs	5.8%	78.8%	11.4%	4.3%	100%
Direct Income (mill.\$s)					
Bighorn NF	1.5	23.2	7.1	1.8	33.1
Bridger-Teton NF	0.9	6.9	1.0	0.5	9.2
Shoshone NF	3.5	22.5	2.4	1.3	29.7
Total: 3 NFs	5.9	52.6	10.5	3.6	72.5
% of FS-Related Income					
Bighorn NF	4.5%	70.1%	21.5%	5.4%	100%
Bridger-Teton NF	9.7%	74.3%	10.4%	5.6%	100%
Shoshone NF	11.8%	75.6%	8.1%	4.4%	100%
Total: 3 NFs	8.1%	72.5%	14.4%	5.0%	100%

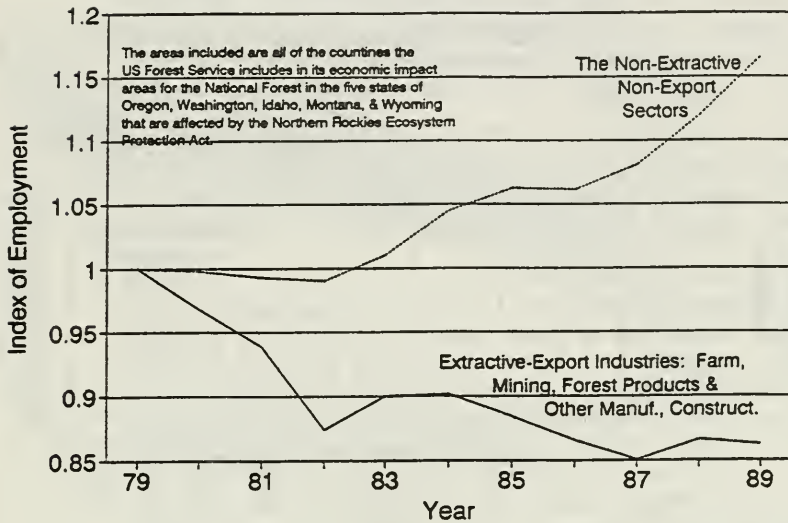
Sources for Table 4: The data on the Shoshone and Bighorn NFs came from the Draft Economic Diversity and Dependency Assessment, U.S. Forest Service, Rocky Mountain Region, November, 1990, Vol. 1, pp. 19, 27, 55. The data on the Bridger-Teton NF came from the Forest Plan FEIS, Appendix B, page 96-113.

economic activity. As a result, only one-tenth of one percent of income in the FS economic impact areas in Wyoming is tied directly to FS timber harvests.

- c. **Timber harvests have been a declining source of employment in the Northern Rockies.** During the 1980's the employment per million board feet of timber harvested declined by over 30 percent. Automation and shifts to less labor intensive products are reducing the employment potential associated with each thousand board feet of timber harvested.
- d. **Wood products and other extractive industries have been a declining source of jobs and income in the Northern Rockies' economies.** During the 1980s, employment associated with these industries was unstable and declining. Yet the non-extractive sectors were able to expand. As a result, the relative and absolute importance of these industries as a source of employment declined. See Figures 1 and 2. The fact that the non-extractive sectors of the Northern Rockies' economies were able to expand despite the collapse of the extractive sectors, dramatizes a vitality in those economies that is unrelated to extractive industry and has been operating to off-set the depressing effects of the extractive sectors. High quality natural landscapes are an important part of that vitality.
- e. **The FS has exaggerated the timber harvests that are actually possible within these roadless areas.** FS plans for these areas were drawn up on the basis of inaccurate timber inventory and site productivity data. Those plans ignored constraints on the spatial distribution of timber harvests. The FS simply assumed that it would be able to meet water quality and fish habitat standards but has found that it cannot. Old growth and endangered species protection were originally inadequately accounted for. As a result of these errors and inadequacies in FS planning, the allowable sale quantities the FS originally projected as coming from these roadless areas cannot and will not be realized. Almost all NFs in the region are now in the process of reducing actual sales to well below those projected in the forest plans.
- f. **Roadless areas are the most costly and least productive from a timber management point of view.** That means that most of these areas can be managed for timber only at substantial losses to the U.S. taxpayer. Congress and the Administration is putting increasing pressure on the FS to end such below-cost timber management. As a result, many of these roadless areas will have to be removed from the suitable timber base.

Figure 1

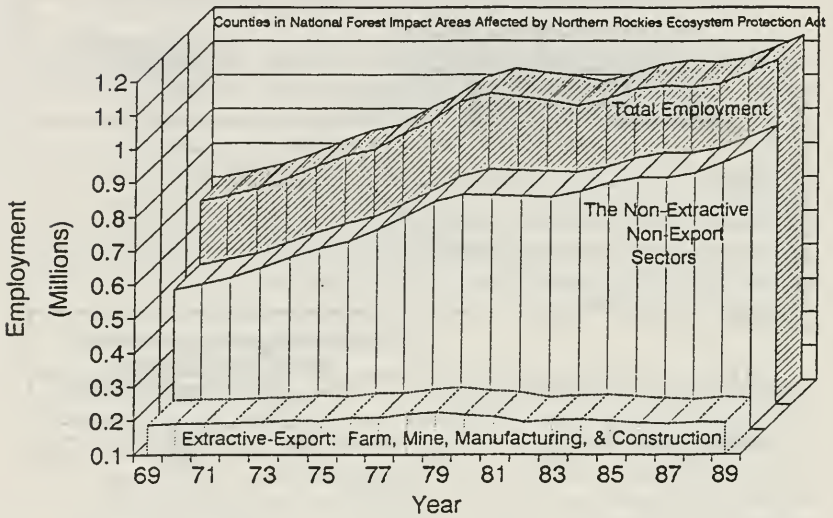
Extractive-Export v. Rest of Economy NREPA Affected National Forest Areas



Source: Regional Economic Information System CD-ROM data, Bureau of Economic Analysis, U.S. Department of Commerce, county data aggregated to match U.S. Forest Service definitions of National Forest Economic Impact Areas.

Figure 2

Extractive-Export v. Rest of Economy NREPA Affected National Forest Areas



Source: Regional Economic Information System CD-ROM data. Bureau of Economic Analysis, U.S. Department of Commerce. county data aggregated to match U.S. Forest Service definitions of National Forest Economic Impact Areas.

6. Mitigation Measures to Offset Timber-Related Employment Losses

Although the employment impact of protecting virtually all of the remaining roadless areas in the Northern Rockies is likely to be positive and the timber-related job losses will be quite small, there are measures that could be taken to reduce the impact on the forest products industry. These include the following:

- a. A reduction in federally subsidized harvest of timber from public lands will automatically make the management of private lands for timber more profitably. This will lead to increased production from private lands that will at least partially offset the decline in harvest from public lands.
- b. The FS can avoid some of the losses associated with restricted harvests in roadless areas by more intensively managing the already roaded land base. To the extent that these areas are less expensive to manage for timber and more productive for timber, there will be net gains from such a shift in emphasis.
- c. Areas badly damaged by past timber harvest activities can be rehabilitated. Instead of focusing its management efforts on extending the reach of destructive harvesting techniques, the FS can focus resources on repairing the damage associated with past harvests. This would provide jobs that offset any decline in timber-related employment. NREPA specifically mandates such rehabilitation investments.
- d. Reductions in the export of raw logs would increase the timber supply to mills throughout the northwest. The shipping of logs to the Far East has, through displacement of supply, created restricted supplies throughout the region.
- e. Increased recycling of cardboard and paper can increase the supply of fiber available to both paper mills and lumber mills. Recycled paper can provide fiber to paper and paperboard mills, reducing their need to pursue round wood for raw material and protecting them against a decline in the supply of chips associated with a decline in lumber and plywood mill output.
- f. As lumber mill operations focus increasingly upon the production of the least labor intensive products using the least labor intensive production processes, only efforts to increase the labor content of wood products operations can protect wood products employment. There are wood products that are much more labor intensive. The log home industry is the extreme example. But

other "value added" operations are also possible including the production of more specialized products compared to the standard two-by-four or two-by-six stud. Some mills in region have already shifted this direction in pursuit of more stable markets.

7. Conclusion

The residents of the Northern Rockies do not face a tragic choice that forces them to choose between preserving their natural wildland heritage and impoverishing themselves. Protecting wildlands and enhancing their economic well-being are not only compatible objectives, but, more importantly, our economic future is tied to protecting the unique qualities of the natural landscape in the Northern Rockies.

The timber-related job loss associated with protecting almost all of the remaining roadless areas in the Northern Rockies is quite small because most of those roadless areas are not suitable for timber management and because the wood products industry has been shrinking in relative and absolute importance in the region for over a decade now. A few weeks worth of normal job growth in the national forest counties of the Northern Rockies will offset what small impact there is.

The economic future of the Northern Rockies is tied to what makes it unique: its spectacular natural landscape and the wildlife it supports. These world-class recreation, wildlife, and scenic resource will grow increasingly valuable as environmental sensibilities continue to develop and as more and more natural environments are degraded by industrial and urban development. The positive impact the natural landscape has upon the economy can already be seen in many of the region's "wilderness" counties which have become the sources of vitality for the region's economies.

To open the remaining unprotected roadless areas in the Northern Rockies to roaded logging would represent pure economic waste. These areas can only be logged at a loss to the federal government. Logging them will provide a few tenths of one percent to total employment in an industry that has been a declining source of employment and income. In the pursuit of these few jobs, we will permanently sacrifice the Northern Rockies' real economic base: the natural landscape that attracts and holds residents here while supporting them physically and spiritually in a way found in few other places in this nation. There is no compelling economic logic to roaded timber development of the Northern Rockies' remaining roadless areas.

Full Studies Conducted

1. The Employment Impact of the Northern Rockies Ecosystem Protection Act in Montana, March 1992, 73 pp.
2. The Timber Employment Impact of the Northern Rockies Ecosystem Protection Act in Idaho, June, 1992, 80 pp.
3. The Timber Employment Impact of the Northern Rockies Ecosystem Protection Act in Washington and Oregon, August, 1992, 72 pp.
4. The Timber Employment Impact of the Northern Rockies Ecosystem Protection Act in Wyoming, September, 1992, 56 pp.

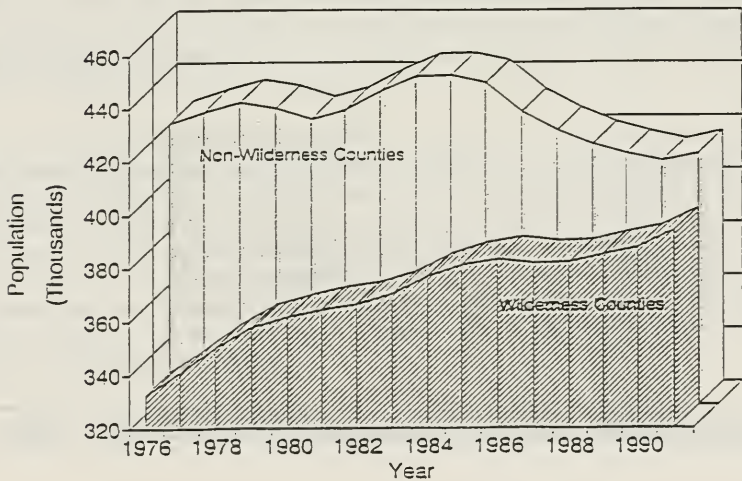
Figure 7
Growth in Wilderness Counties Nation-Wide

Population Change

Year	U.S. Metropolitan Counties	All U.S. Nonmetropolitan Counties	All U.S. Wilderness Counties	Ratio Wilderness/ Non-Metro
1950-1960	26.3%	3.0%	18.2%	6.1x
1960-1970	17.1%	4.3%	12.8%	3.0x
1970-1980	9.9%	13.4%	31.4%	2.3x
1980-1985	11.0%	6.9%	24.3%	3.5x

Source: Gundars Rudzitis, How Important is Wilderness, Table 1, paper presented at 4th World Wilderness Congress, Estes Park, CO, Sept., 1987

Wilderness v. Non-Wilderness Counties Montana Population



Declaration of Robert F. Mueller, Ph.D., October 20, 1993

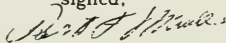
I, Robert F. Mueller, Ph.D., of Route 1, Box 250, Staunton Virginia 24401-9617, do declare as follows under penalty of perjury:

For more than a decade I have observed and closely monitored Central Appalachian ecosystems and actions by the U.S. Forest Service therein. Monitoring has included not only the period before and immediately after timber cutting but also the type and quality of regeneration in older cuts. Virtually without exception I have found that even age timbering — clearcut, shelterwood, seedtree etc. — in these forests has been highly destructive of ecosystems in terms of the forest floor, loss of topsoil, soil compaction, siltation of streams, and most serious of all, the failure to regenerate not only the desired timber species but also the host of herbaceous understory species that count for most of the vegetative diversity. This is in close agreement with recent studies of Duffy and Meier (1992) (attachment #1). I have also seen signs of detrimental effects on amphibians as documented by Raymond and Hardy (1991) and Petranks *et al* (1993) (attachment #1). Frequently, also, I have found that regenerated tree species are not those desired and predicted by the Forest Service, namely chiefly oaks, but undesirable species such as Red and Striped Maples, Gum, etc. (Mueller, 1992a) (attachment #2). In some cases the Forest Service has gone to pains to conceal this result and has issued falsified reports (Mueller, 1992b) (attachment #3). Many of the negative aspects of even age timber management have been summarized by Robinson (1988) (Attachment #1).

Contrasting with the generally destructive character of even age management selective cutting — single tree, group selection — has far less impact, especially with respect to the soil and forest floor plant communities. A stipulation here, however, is that selective cutting must not be unduly dependent on new road construction and must be confined to timber stands mature enough to yield a profit. The so-called group selection — really patch clearcutting — and management in general by the U.S. Forest Service has resulted in excessive roading and cutting much immature timber which has been sold at a loss for pulpwood. The result has been degradation of ecosystems and losses to the U.S. Treasury. I believe that with stipulations against excessive roading, with preservation of existing roadless areas, and avoidance of frequent entries to retain solitude and achieve tree maturity, H. R. 1164 could provide a far greater degree of protection to Central Appalachian forests than exists at present.

Recently the U.S. Forest Service has attempted to answer critics of their even age management and other abuses. One tack they have employed is a continuing change in rhetoric. New names for even-age cutting methods have multiplied. In the Monongahela National Forest for example "Two age" cuts have recently been introduced. Recently also "ecosystem management" has become a buzzword but little more. In the analysis of the High Knob Opportunity Area of the Jefferson's Clinch River District the now "old hat" "New Perspectives" is said to be "in transition to Ecosystem Management." On May 7, 1992, Supervisors of the George Washington and Jefferson National Forests invited forest activists "to become involved with our scientists in the development...of specific old growth forest descriptions." However when a splendid stand of old growth was called to their attention in the proposed Stillhouse Timber Sale they rejected all appeals and decided to cut this stand anyway. So much for "Ecosystem Management."

signed,



Robert F. Mueller, Ph.D.

Attachment #1
Declaration of Robert F. Mueller, Ph.D.

Literature References

1. Duffy, David Cameron and Albert J. Meier (1992), "Do Appalachian Herbaceous Understories Ever Recover from Clearcutting?" *Conservation Biology* 6 (2), pages 196-201.
2. Raymond, Larry R. and Laurence M. Hardy (1991), "Effects of a Clearcut on a Population of the Mole Salamander, *Ambystoma talpoideum*, in an Adjacent Unaltered Forest," *Journal of Herpetology* 25, (4) pages 509-512.
3. Petranks, James W., Matthew E. Eldridge and Katherine E. Haley (1993), "Effects of Timber Harvesting on Southern Appalachian Salamanders," *Conservation Biology* 7 (2) pages 363-370.
4. Robinson, Gordon (1988), *The Forest And The Trees*, Island Press, Washington, DC, 257 pages.

Vitæ of R. F. Mueller, Ph.D.

Route 1, Box 250, Staunton, Virginia 24401-9617

Ph.D. geology, University of Chicago, 1959; Research associate and adjunct professor, University of California, San Diego, 1960—1962; Assistant Prof., University of Chicago, 1962—1967; Senior Scientist, Goddard Space Flight Center, National Aeronautics and Space Administration, 1967—1976; While at NASA did planetary (chiefly Venus) and environmental research. Authored numerous publications in geology, planetology and environmental science. Since retirement in 1976 has been a student of Central Appalachian ecosystems and has monitored them and the activities of the U.S. Forest Service.

Attachment 3

News Virginian 5-8-92

Forest Service an 'Outlaw Agency'

The U.S. Forest Service is an outlaw agency that continuously uses duplicity to accomplish its ends, to perpetuate its bureaucracy. In doing so it loses millions of taxpayer dollars on timber sales and for needless and destructive projects that jeopardize ecosystems:

One recent example is the illegal clearcutting of ecologically important dwarf forest habitat of the rare Cow Knob Salamander so that a few yuppie hang-glider enthusiasts might benefit.

This instance, on Reddish Knob of the George Washington National Forest, was perpetrated without authorization and review in a scoping notice and environmental assessment as required by regulation.

Of more widespread occurrence are Forest Service cover-ups of their silvicultural failures. In a recent discovery by Virginians for Wilderness they were caught falsifying reports on regeneration in the Deersfield District of the GWNF.

According to the FS, major species growing in a 10-year-old clearcut and a shelterwood cut on Signal Corps Knob are Black Locusts and Oaks.

However, in extensive surveys, Virginians for Wilderness determined that red and striped maples are dominant species in these cuts and form up to 60 percent of the clearcut. Yet their records obtained through the Freedom of Information Act don't mention the word "maple."

Indeed, maples, pariah species in their view, are common unwelcome guests in many of their clearcuts, a circumstance that runs contrary to their silvicultural theories and wishful thinking.

Apparently the results were so negative on Signal Corps Knob that they decided to hide them. However, Virginians for Wilderness stands ready to support these assertions with documents (signed by the forest supervisor) and in the field.

The U.S. Forest Service and the GWNF in particular need reform, especially with the revision of the Forest Plan now under way.

They must be forced to practice ecologically based management and fundamental honesty.

Robert F. Mueller,
Virginians for Wilderness,
Route 1, Box 250,
Staunton.

Tim Foss
 HC 60, Box 10160
 Cle Elum, Wa. 98922

My name is Tim Foss. I am a professional forester with approximately 15 years experience in timber management in the state of Washington.

I have spent the last few years visiting people who are successfully practicing selection management on their own land, and learning how they do it. I have seen successful examples in most forest types of the Northwest, including mature Douglas-fir/ western hemlock, second-growth Douglas-fir/ western hemlock, mixed-age ponderosa pine, and second-growth mixed conifers. The landowners I've observed have been harvesting for 20-50 years and have successfully developed an all-age stand in which selection harvesting can continue ad infinitum. This has convinced me that selection management is practical if the landowner is willing to learn from the forest, and exercise care in all phases of the operation. I see no reason it won't work in any forest type with which I'm familiar, even lodgepole pine.

For example, Merve Wilkinson, a landowner on Vancouver Island, has been practicing selection management for 50 years in his mature Douglas-fir stand. To date, he has made nine complete harvests- about one every five years. He has removed as much volume as was in the original stand, and still has a healthy all-age forest. Not only will his forest continue to produce products, but it appears to maintain the ecological niches of the original forest. As proof, Merve still sees all the same wildlife as when he first bought the place, except for a few, such as bear and cougar, that require a larger range than his 140 acres provide. What I find particularly interesting is that Forest Service Silviculturist Leo Isaac "proved" in the 1950's, that selection management wouldn't work in this forest type, and yet it obviously does in Merve's case. This tells me that selection management is possible and practical even when the common wisdom says otherwise. It does seem, though, that the landowner must be committed to making it work. If the landowner is only interested in short-term gain, or is impatient, any attempt at selection management can easily degenerate into a high-grade. High-grading, which is sometimes confused with selection management by those unfamiliar with the system, is the practice of cutting the best trees and leaving the poorer ones with little thought to the future. In a properly-done selection harvest, however, the future is paramount. The landowner cuts only those trees that will contribute the least to a healthy forest now and in the future.

Selection management is also sometimes criticized because of the common belief that it requires a more extensive road network, results in more ground disturbance, and causes more residual stand damage. My experience is that, in a properly done operation, none of this is true. A well-thought-out logging plan and careful logging will minimize these factors with selection, just as with any other silvicultural system. The same goes for insect and disease problems. The landowner can influence the mix of tree species on the site by emphasizing removal of those species most susceptible to insects and disease and, if needed, by planting resistant species for the future stand.

In summary, the selection system requires a careful, professional approach on the part of the manager, as well as commitment, patience,

and willingness to learn from the land. Given these factors, it has been my experience that the system can work in most, if not all, Northwest forest types. It provides a viable system for producing timber, while at the same time maintaining an intact forest ecosystem.

Timothy G. Foss

Timothy G. Foss
Forester

APPENDIXConducting Unevenaged Management in the Aspen Forest Type

by Robert Zahner

Professor Emeritus, Clemson University

I feel I am qualified to make the statement below because of my education and professional experience in the fields of forestry and ecology. I have an undergraduate degree in plant ecology, a masters degree in forest management, and a Ph.D. degree (Duke University, 1953) in forest ecology. I have been a forest research scientist for the U.S. Forest Service (1953-1959), and I have been a professor of forestry at the University of Michigan (1959-1974), the University of Tennessee (1979), and Clemson University (1980-1989). These research and teaching positions, over the past 40 years, have placed me in the forefront of forest management and forest ecology activities. I am a life member of the Society of American Foresters, receiving in 1971 the Society's highest award for professional contributions in forest ecology. I am a Fellow in the American Association for the Advancement of Science, and I am a registered forester.

Statement. During the 15 years (1959-1974) that I was on the forestry faculty at the University of Michigan, I and my graduate students conducted much research in northern Michigan, Wisconsin, Minnesota, and Canada. Most of our studies were concerned with the aspen forest type of the Lake States region, and included such subjects as forest stand structure, forest soil productivity, and silvicultural systems for regenerating the aspen type. My graduate students published over 15 masters and doctoral theses on these subjects, and I published in professional and scientific journals over 20 articles concerned with the aspen forest type.

I am limiting my present statement to the question of managing aspen forests in the Lake States region. Evenaged management, employing the silvicultural technique of clearcutting for obtaining aspen reproduction over large forested areas, has been the preferred system used by the U.S. Forest Service for the past several decades. Evenaged management was adopted because reproduction of the three species of aspen, Populus tremuloides, Populus grandidentata, and Populus balsamifera, is classified as being intolerant of overstory shade and therefore young stands are regenerated in open areas. Large open areas, such as clearcuts, are not necessary for such regeneration.

Young aspens regenerate as root sprouts from the roots of harvested older trees, appearing immediately in any size opening wherever one or more mature trees are cut. Prolific sprouting occurs even in small openings wherever overstory aspen trees are cut. Only a few of these sprouts are required to restock the openings; the remainder serve as a food source for wildlife.

Clearcutting to obtain large acreages of aspen regeneration is the preferred system, but it is not the only system that works in this forest type. Group selection techniques offer, in many respects, a better system, both ecologically and silviculturally. The harvesting of small groups of mature aspen, creating openings

in the canopy of a width equal to no more than twice the height of the surrounding trees, provides several advantages over the creation of large blocks of clearcut forest. The distribution of young aspen sprouting in openings throughout the forest, for example, provides far better distribution of food for deer and grouse than in large clearcuts because animals can utilize entire openings and retain the benefit of surrounding forest cover. In clearcuts, these wildlife species utilize edges but do not venture far from forest cover into the middle of very large openings. For wildlife, new clearcuts or new group selection openings should be provided every ten years in each compartment.

By definition, the "group selection" technique is a regeneration method that creates and maintains an unevenaged forest with the essential requirement that there be at least three reproduction cuttings during one rotation. The aspen forest type is generally grown on rotations of between 40 and 60 years for pulpwood and between 80 and 100 years for saw timber. National Forest rotations tend to be the longer because quality veneer logs are the optimum products.

Properly planned, a series of small group selection openings, harvested at intervals of about 10 years, can create in a 60-year old evenaged aspen forest a completely unevenaged forest in 40 years. At that time, most of the residual oldest age class of 100 years (rotation age) can be regenerated, and the middle age classes will be 40, 30, 20, and 10 years. Such a forest structure can be perpetuated in-definitely, gradually becoming more diverse in age classes with each entry. More frequent harvest entries will speed up the process.

Group selection harvesting does not require more roads than clearcutting. Small groups are not accessed by truck, only by skidders which do not require roads. Timber sales with group selection harvesting can be packaged for bidding by small local contractors, rather than by the large equipment contractors required for clearcutting.

In closing, I can recommend uneven-aged management, maintained with group selection silvicultural techniques, for the aspen forest type. Many forest values are preserved by such management, including wildlife (game and non-game species), biological diversity, high quality timber supplies, recreation potential, and important esthetic values.

Respectfully submitted,

Robert Zahner

Robert Zahner

P.O. Box 263

Highlands, NC 28741

1/14/91
(date)

Cherith D. Benson
witness to signature

Marie G. Benson
witness to signature

Forest Reform Network

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(214) 352-8370

October 7, 1993

Edward C. Fritz
Coordinator

FACT SHEET

MENOMINEE FOREST: SELECTION MANAGEMENT SINCE 1854

The Menominee Reservation, comprising Menominee County, Wisconsin, has operated a 220,000-acre block of commercial forest primarily under single-tree selection management since 1854.

After profitable production of timber for 140 years, the forest contains about 1.5 billion board feet, which is more than it had in 1854. The forest has an ever-improving quality and quantity of timber. See graphs, attached.

It is true that about 10% of the volume is in aspen and jack pine types, which they manage under clearcutting. However, they are reducing these components. Moreover, they may be unaware of studies at the University of Michigan showing that group selection is the preferable system for aspen. Affidavit of Dr. Robert Zahner, Hearings, Subcommittee on Forests, Family Farms, and Energy, of the Committee on Agriculture, House of Representatives, June 16, 1992, Serial No. 162-97, p. 349, 10/14/93. Oct. 6, 1993, attached hereto, Serial 15.

Menominee employs selection management in at least four forest types, in living refutation of the Forest Service's contention that it needs to experiment in every location before it can start back to selection from its current even-age system.

MENOMINEE FORESTRY

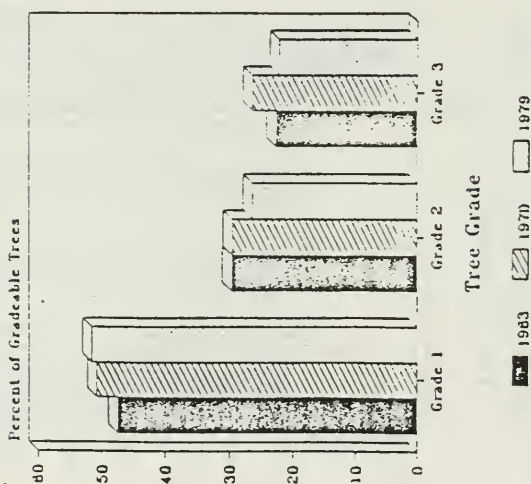
The Menominee Forest is a 220,000 acre block of commercial forest consisting of ten contiguous townships. The forest has survived as an island of sawtimber in a sea of cutover lands due to the foresight of ancestral Menominee leaders who resisted internal and external pressures to clear the forest farming or quick, short-term profit. Instead, cutting has been regulated throughout its 135 year cutting history and adherence to recognized concepts of sustained yield forest management has prevailed. The land ethic of the Menominees relates to their spiritual and religious beliefs about the land - that the land will provide for them; that they should respect the land and do nothing to harm it. Without the land, the Tribe would lose its identity and thus the land is held sacred.

Currently, the Menominee Forest a very valuable asset of the Menominee Tribe with an estimated standing timber value of \$325,000,000. It provides employment for an estimated 125 people in the Neopit sawmill and another 80 woodworkers, including loggers and forestry personnel. In addition to cut forest products, the forest provides countless benefits to the Menominee people including recreation, aesthetics, environmental protection, and a tie to their heritage and ancestry. Historically, their commitment to the recognized principles of forestry has provided for these concerns.

The responsibility for management of the Tribal Forest rests with Menominee Tribal Enterprises (MTE), the business arm of the Menominee Tribe. MTE Forestry staff is assisted by foresters from the U.S. Bureau of Indian Affairs (BIA) and the Wisconsin Department of Natural Resources (DNR). All three agencies work side-by-side at the Menominee Forestry Center under the "One Roof Concept". Agency provincialism has been replaced by a spirit of cooperation and a management philosophy of "what's best for the forest?" prevails. This arrangement pools the knowledge and resources of all three agencies into one team with a common goal - the proper management and protection of the Menominee Forest.

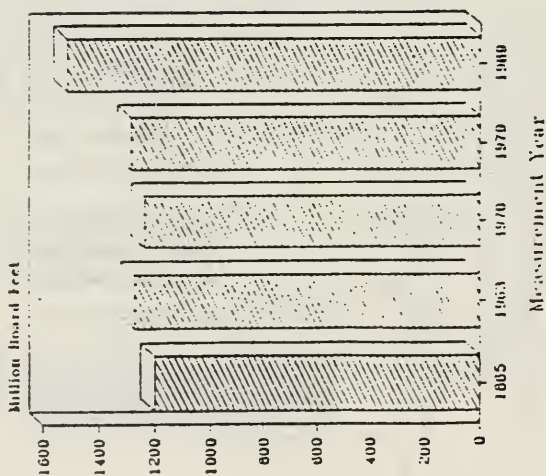
Menominee Tribal business affairs are managed by MTE. MTE operations are directed by the Company president and his staff who report to an elected twelve member board of directors. Besides the management of the Tribal Forest, the most notable venture of MTE is the operation of the Neopit sawmill. MTE provides a very diverse product line of high quality hardwood and softwood lumber, veneer logs and a variety of pulpwood species. Efforts are ongoing to improve efficiency of mill operations and diversifying product lines to provide new marketing opportunities and business expansion are important concerns of MTE.

MENOMINEE RESERVATION Tree Quality Trends



Tree Quality is another very important aspect of sustained yield forest management. In addition to producing a constant volume or quantity from the forest, it is equally important to maintain or improve the quality or grade of the trees. This chart compares the changes in tree grade between three Continuous Forest Inventory (CFI) measurements on the Menominee Forest. The chart depicts an increase in the percentage of higher quality logs and a decrease in the percentage of lower quality logs. This is significant as it points out that the practice of forestry on the Menominee Forest provides for a stable timber volume removal while the timber quality is constantly improving. The overall value of the timber is increasing through proper forest management.

MENOMINEE RESERVATION Total Sawlog Volume



Operable Acreage Only

Timber Volume found on the Menominee Forest at different time periods is shown on the graph. When the first timber inventory was taken in 1854, it was estimated that there was 1.2 billion board feet of timber present on the Menominee Reservation. Since cutting began on the Menominee, in 1865, 2.1 billion board feet of timber has been removed. And yet, the last CFI inventory indicated that there was still 1.5 billion board feet of timber present. Stated another way, the entire volume of timber found on the Menominee Reservation when cutting began has been cut twice over the course of 135 years and yet the current volume exceeds the original volume. Sustained yield management of the forest really works!

Rt 2, Box 105E
 Highlands, NC 28741
 Phone (704) 526-5927

STATEMENT

TO: MEMBERS, UNITED STATES CONGRESS

I am James R. Padgett, better known as "Bob" Padgett, a registered North Carolina professional forester and member of the Society of American Foresters. I served as district ranger with the U. S. Forest Service on Ozark National Forest, DeSoto National Forest, and Nantahala National Forest. After retirement with 30 years in the Forest Service I prepare forest management plans for private woodlands and manage our own small forest tracts in Alabama and North Carolina.

As a forester I have practiced UNEVEN-AGED forest management (selection cutting) and also EVEN-AGED forest management (clearcutting, seed-tree, and shelterwood). The Forest Service began clearcutting in the Eastern United States national forests in the mid 1960s, based on research which showed successful regeneration from clearcutting Mature and Over-mature Appalachian hardwoods. Such older trees do not sprout and the new forest is generally from seeds and root sprouting.

The Forest Service went wrong when it began clearcutting Immature hardwoods, which sprout vigorously, resulting in multiple stump sprouts, which simply cannot mature into quality sawlog trees. I have repeatedly conducted tours showing these multiple-sprout results of clearcutting to Forest Service officials, including Forest Supervisor Bjorn Dahl, who is now Congressional Liaison for the agency in Washington. None of these officials could defend the clearcuts as "good forest management." However the agency has persisted in continuing the practice because it is cheaper and easier to sell timber this way.

STATEMENT

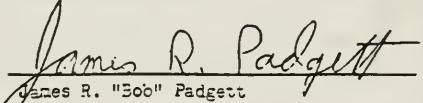
Page 2

It has long been my opinion that the U. S. Forest Service will not stop EVEN-AGED forest management on our national forests without being forced to do so by either the Courts or Congress. They keep forest management plans in a constant state of formulation or amendment, in my opinion to simply prevent court action against their practices.

It is my professional opinion that UNEVEN-AGED forest management, selection cutting, using only temporary logging roads rather than permanent system roads, is the best way to achieve "ecological" balance and to protect biodiversity of our national forests. In particular, the extensively-used practice of clearcutting, prescribed burning, and planting pine seedlings on steep mountain slopes is an environmental disaster. The clearcutting and burning destroys forest litter and organic matter, and herbicide spraying is required to bring the pines above hardwood sprouts. With UNEVEN-AGED management this destructive practice would no longer be applicable or necessary.

I declare under penalty of perjury that the above statements are true and can be verified both on the ground and by credible witnesses.

September 10, 1993


James R. "Boo" Padgett
Registered Forester

My name is Ray Vaughan. I am an environmental attorney practicing in Montgomery, Alabama. I was born and raised in Alabama and have practiced law in Alabama since 1986. I have been an active hiker, camper, bird-watcher, canoeist and appreciator of the four National Forests in Alabama for more than 25 years. My book, *Birder's Guide to Alabama and Mississippi*, which includes detailed accounts of where to bird watch in the National Forests of Alabama and Mississippi, is scheduled to be published in December 1993 by Gulf Publishing Company of Houston, Texas. I have had published numerous articles in magazines such as *Bird Watcher's Digest* and *Wild Earth* about the forest areas of the National Forests and National Wildlife Refuges of Alabama and Mississippi. With years of intimate experience and appreciation of the beauty throughout all of the National Forests in Alabama and the Southeast, I am keenly aware of the damage being done to these special public lands through even-aged timber management.

With forestry, National Forest management and wilderness matters being very important in the South, I have acquired quite a good bit of legal and practical experience with National Forest policy and legal issues. My involvement in National Forest and wilderness issues has extended from every National Forest in Alabama, Mississippi and Georgia on through personal surveying and lobbying on forest issues in Oregon, Washington and Alaska. As an assistant attorney general in 1987 and 1988, I handled the State of Alabama's challenge to the 1986 management plan for the National Forests in Alabama. Currently, I represent wilderness and National Forest reform advocacy groups such as the Alabama Wilderness Alliance and The Bankhead Monitor. I was a participant in a panel discussion on forestry issues at the University of Georgia School of Law's 1993 environmental law conference. I have also taught environmental law as an adjunct instructor at Jones School of Law in Montgomery, and that class included forestry issues. Further, my family owns forest land, and through legal action to protect that land, I am well aware of legal and policy issues regarding privately-owned forests.

I wish to express my strong support for Representative Bryant's Forest Biodiversity and Clearcutting Prohibition Act of 1993, H.R. 1164. This bill will be a significant step forward in protecting the National Forests of Alabama and the Southeast while making timber harvesting practical and much more sustainable than it is now. In Alabama, with the exception of a few demonstration projects, the Forest Service uses even-aged timber harvesting exclusively on all four of our National Forests. This reliance on just even-aged management has led to sore conflicts and difficulties that could be avoided if selective harvest methods were utilized.

I know from personal experience and from discussion with numerous wildlife biologists that the Forest Service timbering practices in Alabama do not protect Alabama's tremendous natural

diversity. In the Bankhead National Forest clearcutting practices have led to a conversion of native hardwoods to monoculture pine plantations; this even-aged timber management has increased siltation in the Sipsey National Wild and Scenic River and adversely impacted 11 species of mussels listed as threatened or endangered under the Endangered Species Act and the threatened Flattened Musk Turtle, which lives only in Alabama. Further, the timber practices have led to the extirpation of whitetail deer from most of the Bankhead; the situation is so bad that deer must be imported into the Bankhead from other areas of the state. Numerous sacred and historic Native American sites have been destroyed by clearcutting when selective cutting would have preserved those areas while still getting the valuable timber harvested. Alabama has more species of fish than any other state; some of those fish species live only in the Bankhead National Forest, yet the Forest Service does not take into consideration the impacts even-aged harvesting has on those fish or any of the unique wildlife there. This bill would fix those problems in the Bankhead while still allowing truly sustainable timber harvesting.

In the Tuskegee National Forest in June of 1993, the Forest Service clearcut directly on and along the Bartram National Recreation Trail, Alabama's first National Recreation Trail. This clearcutting next to a major hiking trail created a scenic horror, but trial selective thinning cuts used elsewhere in the Tuskegee have enabled timber production while still retaining the visual quality of the mixed-age and mixed-species of trees in the forest. This bill would protect the quality of recreation on our Southern National Forests while still making timber harvesting available.

In the Oakmulgee Ranger District of the Talladega National Forest, we have the largest concentration of endangered Red-cockaded Woodpecker colonies in Alabama and one of the largest remaining in the world. Even-aged management practices are totally inappropriate for preserving the woodpecker, and emphasizing clearcutting, the Forest Service must either violate the Endangered Species Act or refuse to allow timber harvesting. Selective harvesting would enable the Forest Service to preserve the old-growth trees needed for the woodpecker while making timber available in areas where it is now impossible to harvest with even-aged methods. This bill would resolve a timber-endangered species conflict in the Oakmulgee and in many other areas like it.

The Forest Service timber practices in Alabama also have negative impacts on the timber industry by artificially lowering prices for pulp wood and by replacing hardwood forests that provide diverse forest products with unnatural pine plantations that provide an extremely restricted selection of timber to a smaller market. The Forest Service's exclusive use of even-aged timber harvesting puts small operators at a disadvantage; this bill will rectify that situation.

It has been proven that selection management for timber works in Alabama's forests. Wilmon Timberlands has been using selective cut, sustained yield management since 1912 and has been profitable doing so. Selection logging has provided better long-term logging jobs in Alabama than even-aged management. See Robinson, The Forest and The Trees, 20-21 (Island Press 1988) for details on how Wilmon operates. Such timber practices will also work on Alabama's National Forests, throughout the Southeast and across the rest of the nation.

As an attorney who has worked under numerous environmental statutes such as the Clean Water Act, the Clean Air Act, and the Endangered Species Act, I feel that the inclusion of citizen suit provisions in this bill is vitally important. Americans, particularly those whom I represent, take keen interest in their public lands, and a citizen suit provision enables those people who care about our forests to defend them. Inclusion of a citizen suit provision is also an acknowledgement of whom our public lands are to be managed for: the citizens and taxpayers. I have found that citizen suit sections with penalty provisions in other statutes have led to swift and mutually-beneficial settlements. Instead of playing procedural games over how the suit was brought, plaintiffs know that they have a judicial remedy for harm done to their public property, and defendants know that the substantive merits of a claim, and not vague procedural concerns, will be the issue at trial. Thus, cases are resolved swiftly with settlements that work more to rectify the problem than to punish the defendant.

For the National Forests in Alabama and the rest of the Southeast. H.R. 1164 will mean significant improvement over the current management scheme. Forest variety, both in tree age and in tree species diversity, will return to our public lands, and a variety of timber and forest products will once again be available to all businesses while maintaining our public lands as refuges for biological diversity. Even-aged management of Southeastern National Forests has led to decreased biological diversity, decreased economic diversity and opportunity, and decreased recreational variety. You have the opportunity that reverse that decline and bring much truer balance to the uses of our public forest lands. Thank you.

NWCSF

Northwoods Citizens For a Sustainable Forest

SERVING THE UPPER GREAT LAKES BIOREGION 8333 Bemidji RD Bemidji MN 56601

October 26, 1993

U.S. House of Representatives
 Agriculture Subcommittee
 Specialty Crops and Natural Resources

Dear Chairman Rose and Members of the Committee:

Northwoods Citizens For a Sustainable Forest (NWCSF) formed in response to the Minnesota Department of Natural Resources (DNR) granting approval to the timber industry in 1989 to proceed with plans to spend 2.7 billion in capitol investments primarily in the pulp and paper industry by 1995. Our research indicated the DNR wanted to double the statewide cut of the early 1980's by the mid 1990's to 6 million cords per year or 300,000 acres per year from Minnesota's 14.8 million acres. In 1992, *4 million cords were cut* according to the Generic Environmental Impact Statement (G.E.I.S.). Imagine a football field full of 4x4x8 foot cords of wood and then, look up 4 1/2 miles! *Never before in Minnesota's history have we witnessed that level of cutting including the White Pine Era, which at its height saw 2.2 million cords cut.*

The Chippewa National Forest (CNF) is located in what the G.E.I.S. calls Ecoregion 4. This region contains over 50% of the available forest land in Minnesota which is mostly aspen and birch, an outgrowth of the original pine forests. The CNF has less than 10% of Minnesota's available forests and contains less than 1% of the original White Pine Forest. *Yet, due to recent mill expansions, 5 paper, pulp, chip and panelboard plants in the area surrounding the CNF, plus an expansion of a nearby coal fired electrical plant, have put undue stress on this forest ecosystem and the present Ecosystem Management Plan* adopted by the U.S. Forest Service. None of these plants do any or very little in the handling of recycled material. Much of the processed wood goes out of state and out of country. And all the plants are high tech and automated, providing few local long-term jobs.

The situation of the loggers in Northern Minnesota is like that of the farmers of Minnesota in the 1980's when the land values declined, leaving many farmers with large mortgage payments on big expensive machinery. Loggers have been advised to "get big and get the cut or get out", essentially creating a "frenzy" in the forests. Today with the new equipment (feller-buncher or Hahn Harvester) a logger can cut in one day what it might have taken 3 years on a part-time basis before.

One logger lamented to me that he has to cut 40 cords a day just to make the payment on his equipment. One newly built nearby mill requires 400 cords of aspen a day to feed its operation. Recently, corrections in the same mill had to be made due to 1/5th of its work force being permanently afflicted with

upper respiratory health problems due to toxic chemical inhalation over a 3 year period.

Research (G.E.I.S.) indicates 88% of cutting is done by methods of clearcutting or some variation. The study indicates negative soil impacts under current levels; 1.8 million acres are losing potassium, 5 million acres are losing calcium, 2.7 million acres lose magnesium in excess of their replenishment. Further, wildlife species have negative impacts of 27% at 4 million cords a year; at 5 million cords a year the impact jumps to 44%.

Recently, The CNF let out a timber bid (57 acres of Aspen to be clearcut) in an area known as the "Golden Arch" which contains the only two semi-primitive non-motorized areas of the forest. In fact, this timber bid had been designated as a candidate for Old Growth Complexes by the old Growth Forest Leadership Team (Old Growth Report #2). This bid is in direct contradiction to that plan as well as the overall Forest Plan. It was suggested that this cut would provide needed habitat for whitetail deer and grouse; a disguise used to intertwine the timber industry's lust for public-owned forests (via public forest officials) for their profits. *Simply, there is much more to a forest than providing habitat for one particular species at the expense of other species (Neotropical Migratory Songbirds) that are finding it harder and harder to find intact, large, interior forest habitat.*

The CNF in 1992 sold 7,734 acres (91.6MMBF) of forest timber land and, on the conservative side, lost \$105,000. (In 1991 it lost \$617,000.) As one investor in these many public lands, I lost about \$13.00 on each acre sold. Of the 600,665 acres of available forest land in the CNF, 1/3 is aspen, 1/3 conifer and 1/3 hardwood. I was told by a CNF forester that hand replanting costs \$300 or more an acre while aspen regenerates at no cost. Aspen pulpwood now has a going price of \$13/cord (\$6/cord in recent past) sawtimber \$25, pine pulpwood \$22, pine sawtimber \$135, mixed hardwood pulpwood \$6, and mixed hardwood sawtimber \$33. *So its quite obvious where the profit is generated.*

Consideration of harvesting methods is important. Almost all in the CNF is done by clearcutting or some variation. I'd like to refer to a statement by Dr. Robert Zahner, Professor Emeritus, Clemson University on uneven age management in the aspen forest type. He says and I quote, "Young aspens regenerate from the roots of harvested older trees, appearing immediately in any size opening when one or more trees are selectively harvested. Prolific sprouting occurs even in small openings; the remainder serve as a food source for wildlife". Properly planned, a series of small group selection openings (a width equal to no more than twice the height of the surrounding trees) harvested at intervals of about 10 years can create in a 60 year old even aged aspen forests a completely uneven aged forest in 40 years.

I'd also like to refer to a publication (Wisconsin Biodiversity Concerns: The Northern Forest, October, 1990) by Dr. John Kotar, Senior Scientist, Department of Forestry, University of Wisconsin-Madison and I quote, "Maintenance of forest diversity of total ecosystems cannot be accomplished by simply manipulating the dominant component (i.e., trees). *If less visible organisms and ecological processes are to be given serious consideration, all management practices will have to be carefully re-examined and modified.* Forest management will have to move away from focusing simply on the growing of trees of only a certain species and certain dimensions for the production of fiber, or for habitat enhancement of only selected economically important wildlife species. Further, he goes on to say *we can expect reluctance* on the part of the forest industry to significantly change their established management techniques until it can be demonstrated that they can be cost-effective. At the same time, public pressure to pay more attention to maintaining complete and functional forest ecosystems will surely continue.

Then, Dr. Kotar also refers to the origins of the Menominee Forest in Northern Wisconsin and their sustainable forest practices on their 220,000 acre block of commercial forest. In 1854, leaders of the Menominee Tribe conceived of the idea of using sustained yield management practices to harvest timber on a selective basis in order to preserve the long-term viability of their forest resources and that manage-

ment plan continues to this day. They had an estimated 1.5 billion board feet in 1854. They still had 1.5 billion board feet in 1988 after harvesting 2 billion board feet.

The accomplishments of the Menominee Tribe have also been examined, verified and given recognition by a neutral third party certification group, Scientific Certifications Systems (SCS).

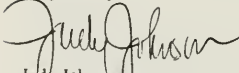
SCS put together a team of scientists and forest management experts to conduct an exhaustive review of the forest management methods employed by the Menominee. This review included an assessment of the long-term environmental impacts of these management practices in the forest ecosystem. Historic, current and proposed forestry activities were included in this review. As a result of this review, SCS has determined that the Menominee forest is being managed in a sustainable manner.

Our organization (NWCSF) recognizes that HR 1164 Forest Biodiversity and Clearcutting Prohibition Act addresses many concerns we have of our National Forests. It would end clearcutting which is detrimental to maintaining whole forest ecosystems while ending subsidization of artificially low prices for virgin products and hence, enhancing recycling efforts. Our landfills are overflowing with virgin paper, wood waste and incineration ash. By the timber industry lobbying Congress to subsidize the added expenses of clearcutting our National Forests (road building, hand replanting and pesticide application), timber companies are able to extract public timber at a fraction of the true cost.

In closing, I'd like to quote Winston Churchill: You can always rely on America to do the right thing - after they have exhausted all the possibilities! It is with the recognition that our National Forests have been exhausted and it is now time to do the right thing. *It must be realized that decisions made today will impact future generations who have the most to gain or lose.* Minnesota forests have only recently begun to make a healthy recovery after the deforestation (White Pine Era) of the turn of the century. It would be a tragedy to have not learned from that history.

Thank you so much for allowing our thoughts to be shared with you and committee members.

Respectfully,


Judy Johnson
NWCSF Project Coordinator

CHIPPEWA
National Forest





October 26, 1993

Dear Chairman Rose and Members of the Committee:

Clearcutting has greater negative impacts on plant and animal diversity, threatened plants, trees and wildlife, water quality, old growth, aesthetics and recreation than does selective cutting. Monoculture stands (often-times created by clear-cutting) are at greater risk to natural disaster such as disease and fire than are mixed stands.

Clearcutting is an additional expense to loggers if they are required to fell all small trees and other species not utilized by industry. If a separate contract is issued to fell remaining trees, that is an additional expense to the government.

Small trees, snags and other species not utilized by industry are cut down and left to rot. This is wasteful.

Clearcutting is unnecessary. The forest management concept that precludes 90-100% sunlight in the forest floor to regenerate a good stand of aspen is a myth. Aspen regeneration appears to be good, even when 30-40% of the residual trees are left standing. Probably less than 15% of the aspen suckers originating after an aspen sale will survive to the next rotations anyway.

In our recognition that only recently have Minnesota forests (CNF) begun to make a healthy recovery after the deforestation of the turn of the century, it would be a tragedy for us as well as future generations to not have learned from that history. In our endeavor to protect and provide a healthy forest for future generations, we support H.R. 1164 - The Forest Biodiversity and Clearcutting Prohibition Act.

Respectfully,

Leon Johnson, President
Mississippi Headwaters Audubon Society
Bemidji, Minnesota

WHY WE NEED

THE FOREST BIODIVERSITY AND CLEARCUTTING PROHIBITION ACT OF 1993

The forests of the Great Lakes States of Minnesota, Wisconsin and Michigan are a testament to what clearcut logging has done to forest ecosystems. As the timber industry cut a swath through the north-central United States on their way to the Pacific Northwest 100 years ago they left devastation in their wake.

Writing from a Minnesota perspective, this destruction took place over a period of 30 years ending in 1910 when Minnesota's pine was liquidated. The same liquidation of ancient forests is happening today in the Pacific Northwest. Only a few acres of old-growth pine currently exist in Minnesota.

The make-up of Minnesota's forests today are largely a result of their first clearcutting. What grew up in place of the original ancient pine forests was aspen and birch. These aspen-birch forests now comprise 41% of Minnesota's forests. Since aspen and birch are pioneer tree species they are the first trees to take over a clearcut site. This marvel of regeneration through root suckering without the need for tree planting is seen by many to be the forester's dream. Simply clearcut the site every 40 years and regenerate the aspen destined to be clearcut in another 40 years. Push the reset button every four decades and a new aspen forest springs

up as if by magic. There is a price to be paid though- This clearcutting causes soil nutrient loss, loss of biodiversity and other damage to forest ecosystems.

The prescription for clearcutting aspen forests is the forest management practice that governs federal land managers. A recent state forest study (Generic Environmental Impact Statement on Timber Harvesting and Forest Management in Minnesota) shows 97% of Minnesota's national forest land is managed by clearcutting. When a stand of trees is clearcut that contains a mix of tree species, including aspen, the pioneer aspen sprouts take over the site.

In Minnesota, between 1977 and 1990, Minnesota's forests have changed to represent 12% more aspen while other species, especially conifers, have shown declines. This trend is a direct result of clearcutting for the regeneration of the quick-growing aspen that is used by the paper and pulp industry as its main fiber source in the Lake States.

What is happening in the Lake States is also happening in other states that have forests that have grown up over the last century. It has only been during the last 20 years in Minnesota that the pulp and paper industry has found a use for aspen and birch. And since they have, the forest management practice to keep our forests in a constant state of regeneration is by clearcutting since it is the cheapest most economical way to log.

The Lake States relatively flat terrain is hospitable to the use of the feller-buncher, a piece of heavy equipment that can make short work of a 40 acre forest plot. Its steel jaws nip off trees like they were flowers picked in a garden. Logging goes on in this part of the country for 10 months of the year. Skidders run through the woods even under extremely wet conditions causing rutting, soil compaction and sedimentation of lakes and streams.

The Generic Environmental Impact Statement (GEIS), that I mentioned earlier, is just being completed in Minnesota. It shows that ^{there are} nutrient losses on millions of acres of

forested lands in our state, largely due to the way aspen is harvested. Wildlife speices, especially birds, are showing declines in various ecoregions of the state by 27% over the next 50 years. If logging increases by 25% the wildlife impacts go up to 44%.

Over the last ten years Minnesota's pulp and paper industry have greatly expanded their operations. The new, efficient mills have doubled their capacity while creating few if any new mill jobs. Clearcutting to make pulpwood farms out of our national forests are already proving to be a disaster as more and more is known about the damage clearcut logging is doing to our forest ecosystems.

The need for Congress to pass H.R 1164 is crucial to help protect Minnesota's federal forests from the ravages of clearcutting. As the biodiversity of our forests decline while monocultures are created through clearcutting the possibility of widespread loss of forests due to insects or diseases increases. Only through the prohibition of clearcut logging and the implementation of selective logging can we insure the health of our forests and the economic security of our timber dependent towns that need a healthy forest ecosystem to survive.

Sincerely,



James F. Woehrle
860 Township Rd. E
Wawina, MN 55736
218-488-6524

Statement of the Honorable Wally Herger

On H.R. 1164

The Forest Biodiversity and Clearcutting Prohibition Act of 1993

October 28, 1993

Mr. Chairman, I want to commend you for holding this hearing this morning to review H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993. I also greatly appreciate your willingness to allow me to testify before this Subcommittee again for this important hearing.

This legislation would have a great impact on my constituents in northern California. As many of you know, California's Second Congressional District, which I have the privilege of representing, is dominated by eight national forests. They include parts or all of the Six Rivers, Tahoe, Shasta, Trinity, Klamath, Modoc, Lassen, and Plumas National Forests. The abolition of even-aged management techniques that H.R. 1164 advocates would have a profound and detrimental effect on the future health of our national forests.

As you may know, the average clearcut on public lands in California is only 13 acres even though by law it is perfectly allowable to clearcut up to 60 acres on Douglas Fir forest lands. The forests of northern California are extremely susceptible to fire, disease, and infestation due to its warm dry climate. Without the ability to use even-aged management techniques, it is highly likely that our pristine forests in northern California would end up destroyed or irreparably damaged.

It is for this reason that I come before this committee today in strong opposition to H.R. 1164. This legislation would severely limit the availability of even-aged management techniques which are essential to the maintenance of healthy forests, and therefore would actually degrade our forests. The fact is, clearcutting more effectively reproduces Douglas fir and other shade intolerant species than other types of timber harvesting techniques. Thus, it is used to promote the healthy regeneration of these types of trees.

There are other instances where even-aged management techniques are necessary to protect the environment. Most importantly, the use of clearcutting is sometimes necessary to control or eradicate insects and diseases which can destroy entire forests if left unchecked. Also, this management tool can be used to increase forage for wildlife in certain areas of the forest.

Mr. Chairman, the use of clearcutting on federal lands has been substantially reduced in recent years and will continue to be further reduced under current law.

It should be pointed out that the Forest Service and the BLM have come out on record opposed to an outright abolition of clearcutting. Furthermore, the Society of American Foresters is also opposed to an abolition on clearcutting saying in its official position and I quote, "The Society believes clearcutting properly used has a role in forest management." The society goes on further to say that clearcutting should be applied under appropriate ecological conditions.

By opposing this legislation, no one is saying that there have never been abuses in clearcutting or other even-aged management techniques. On the contrary, I have worked with both environmental and industry groups to reduce clearcutting on National Forest land in my own northern California district. However, a blanket prohibition will adversely impact the health of our forests by limiting the broad array of techniques necessary for proper forest management.

Mr. Chairman, I am afraid H.R. 1164 would do the exact opposite of what it is supposed to accomplish. Instead of promoting biodiversity in our national forests, H.R. 1164 will lead to fires and diseases running rampant through these beautiful lands. Clearly, nobody here today wants this to happen. Therefore, I urge this subcommittee to do what's best for the health of our forests and reject this well intentioned but misguided legislation. Thank you.

Final

STATEMENT OF
DAVID G. UNGER, ASSOCIATE DEPUTY CHIEF
FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

Before the
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture
United States House of Representatives

Concerning

H.R. 1164

The Forest Biodiversity and Clearcutting Prohibition Act
of 1993

October 28, 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to offer our views on H.R. 1164, the
"Forest Biodiversity and Clearcutting Prohibition Act of 1993."

I am accompanied by Dr. David Loftis from our Southeastern Forest
Experiment Station.

Although the Department of Agriculture cannot support enactment of
H.R. 1164, we support the concept that native biodiversity and
ecosystems should be protected. The National Forest Management Act
already requires the Forest Service to provide for the diversity of
plant and animal communities based on sustainability and capability of
the specific land area and consistent with the management objectives
of the area. One of the goals of our current commitment to ecosystem
management in the Forest Service is to ensure that native biodiversity
and ecosystems are maintained or enhanced on National Forest System
lands.

Biodiversity is not a specific condition that can be defined and put in place permanently. Instead, biodiversity is a dynamic series of conditions that exist over time and space; a constantly changing and evolving assemblage and distribution of organisms. There are also different options for management of resources that will sustain biodiversity but which have different effects on the types, amounts, and location of plants and animals, and the meeting of human-related needs.

The objective of our ecosystem management approach is to combine the best available physical, biological, social, cultural, and economic knowledge and the public's views to determine how the Nation's national forests shall be managed.

We have several concerns with certain provisions of H.R. 1164.

First, the bill places severe restraints upon clearcutting and other even-age management practices. We support elimination of the use of clearcutting as a standard harvest practice, and have made progress in reducing that use. However, a prohibition on all even-age harvest practices is contrary to the goal of protecting native biodiversity. Many naturally occurring ecosystems have been greatly influenced by natural disturbances such as wildfire and insects and disease outbreaks which create even-aged forests. These forests are an important component of the ecosystem and can be emulated through even-aged management practices to maintain biodiversity and other objectives. For example, there are many wildlife species such as wild turkey and ruffed grouse whose habitat require even-age management to maintain optimum population levels.

We believe that to practice ecosystem management and conserve native biodiversity, managers need all the tools available, including even-aged management practices. There is no single management prescription that is best for any one geographic region or vegetation type and we do not support changing our management authorities without credible scientific research, to restrict options for maintaining biodiversity.

We are also concerned with the provision that would narrow the criteria for membership on a committee of scientists which would provide scientific and technical advice on proposed guidelines and procedures to protect native biodiversity. Eligibility would be limited to those scientists who are not officers or employees of the Forest Service or any other public entity, or any entity engaged in whole or part in the production of wood or wood products, or any scientists who have contracted with any such entity during the last five years. Establishment of such a committee seems to erroneously presume that the Forest Service and other Federal natural resource agencies cannot manage the protection of native biodiversity with credible internal and external scientific input. Rather than establishing such a restricted committee that would exclude a great number of eminent scientists, we would rather focus our efforts on bringing user groups and scientists together to gain consensus on implementing ecosystem management on National Forest System lands.

The bill would also require the Secretary to prescribe a shift to individual tree selection management on sites already under even-aged management, or to cease managing for timber purposes and restore the native biodiversity or permit the site to regain its native biodiversity.

These requirements would result in reducing the volume of timber available for harvest, thus reducing Federal timber receipts and increasing the operating costs for carrying out the timber program.

The current estimate of the increased costs is an annual revenue loss of \$225 million due to diminished timber harvests from that currently proposed in National Forest Plans. Operating costs would increase by \$135 million per year because it is more costly to harvest timber under uneven-aged management and single tree selection techniques.

We are also concerned with the civil penalty enforcement provisions of H.R. 1164. The bill would waive the sovereign immunity of the United States, "including its agents and employees," in all respects in all actions. This could subject Forest Service officers and employees to liability in their individual capabilities.

The bill is unclear in its provisions for payment of civil penalties. First, it provides that the United States shall pay any civil penalties to the Judgment Fund, although the purpose of the fund has been to provide for disbursement of judgments owed by the United States. The bill provides that penalties shall be paid from the Judgment Fund to the person designated to receive it, to be applied in protecting or restoring native biodiversity on or adjoining Federal land. The bill does not state who shall designate the persons to receive the monies, and the mandatory use of the monies on or adjoining Federal land may require expenditures where they are not needed. No estimate of these increased costs are yet available.

Finally, the bill's prohibition against the construction or reconstruction of roads in roadless areas as defined in the Roadless Area Review and Evaluation of 1978 (RARE II) or in land and resource management plans could limit opportunities to develop vegetation community mosaics necessary to restore native biodiversity. We believe the Forest planning process or specific wilderness legislation would be more efficient means of determining how roadless areas should be allocated.

Summary

While we support the goal of protecting native biodiversity, we have serious concerns with the restrictive management provisions associated with H.R. 1164.

We will continue to reduce the use of clearcutting and ensure that it is used only to meet specific ecological objectives. However, a prohibition of clearcutting and other even-aged management methods would not be responsible forest management and would limit our ability to implement ecosystem management on National Forest Lands and, further be counter productive in meeting the biodiversity provisions of H.R. 1164.

It is important to remember that ecosystems change over time through natural succession whether managed by humans or not. How they change is related to variables such as natural occurrences of fire, wind, floods, insects, pathogens, climate, as well as how people use and care for the land.

Thank you. This completes my prepared statement. I will be pleased to respond to any questions.

Testimony on H. R. 1164

by

Dr. Dennis C. Le Master

Professor and Head, Department of Forestry and Natural Resources

Purdue University

before the

Subcommittee on Specialty Crops and Natural Resources

U. S. House of Representatives

October 28, 1993

H. R. 1164 proscribes or prohibits even-age management on federal forest lands for the purposes of conserving "native biodiversity" and protecting "all native ecosystems against losses that result from clearcutting and other forms of even-age logging." Is the goal extant in this bill a worthy one, serving the public good? Are the means for attaining the goal viable? In other words, do they make biological sense? Do they promote economic efficiency? What are their equity implications? That is, who gains and who loses? Are the means articulated in the bill socially acceptable? Are they administratively practical? These are all useful questions by which H. R. 1164 can be evaluated.

Goal

Biological diversity is a critical environmental issue. Anthropogenic impacts upon the Earth have reached such a scale that they have drastically reduced and, in some cases, eliminated species of plants and animals. Maintaining biological diversity is a desirable social goal, and it is fitting that Congress explore ways by which it can be accomplished through public policy.

The goal of H. R. 1164 is comparatively modest, seeking to *conserve* biological diversity on federal forest lands and to *protect* them from the consequences of clearcutting and "other forms of even-age logging." It is modest because given the extent of development and resource extraction on private forest lands and the current extent of human disturbance on federal forest lands, Congress might want to *enhance* the current level of biological diversity on the nation's forest lands as opposed to merely conserving it. One effective way of doing so in the eastern United States would be to increase the purchase of inholdings on federal forest lands to create larger blocks of contiguous forest.

Congress might also want to *protect* federal forest lands from a variety of human activities, which uncontrolled, can have substantial impacts on biological diversity, including intensive human recreational activities, livestock grazing, off-road vehicle use, and mining.

A broader, more appropriate purpose for the legislation, given its apparent intent, might be: to provide a system of representative, sustainable forest ecosystems, well distributed across the landscape of the United States at various stages of ecological succession, through appropriate management of federal forest lands. Such a goal would be consistent with the economic rationale usually given for public ownership of

forest lands. By emphasizing the production of non-market resources and use of longer time horizons on federal forest lands, the emphasis on market resources and shorter time horizons on private forest lands would be complemented. The combined production of forest resources and temporal perspectives would tend to approximate the socially optimum quantity and mix of forest resources in the nation.

Means

The means for attaining the goal of H. R. 1164 is proscribing even-age management, including specifically the silvicultural system and logging practice of clearcutting. In other words, according to the authors of the bill, if even-age management were stopped, biological diversity on federal forest lands would be conserved.

Biological consequences

The biological consequences of proscribing even-age management are quite complex. But very roughly, if a forest is of an ecosystem and successional stage relatively uncommon across a landscape, application of even-age management regimes would tend to reduce biodiversity. Hence, statutory prohibition of their application *would promote* biodiversity. On the other hand, if a forest is of an ecosystem and successional stage relatively common across a landscape, application of even-age management regimes would tend to increase biodiversity. Hence, their statutory prohibition *would tend to work against* biodiversity.

Put another way, a prohibition against even-age management on federal forest lands would probably reduce biological diversity in some instances and increase it in others. The results would be mixed.

Application of uneven-age management regimes could have an adverse affect on biological diversity even when a continuous forest cover is maintained, natural regeneration of species indigenous to the site is occurring, and orderly growth and development of trees through a range of diameter or age classes is maintained, three conditions specified in H. R. 1164. For example, there is preliminary evidence indicating that application of uneven-age management in the Hoosier National Forest is resulting in a reduction in the use of that forest by several species of neotropical migratory birds.

The point is mechanical (mindless) application of any management regime by statute or by the unthinking practice of a natural resource professional will ultimately result in failure. Management prescriptions must be appropriate for each and every site. Site sensitivity and thoughtfulness are prerequisites for good forest management, good wildlife management, good natural resource management of virtually any kind.

Economic Efficiency

Proscribing even-age management on federal forest lands will result in a significant loss of economic efficiency, assuming traditional multiple use-sustained yield management as practiced, at least until recently, on the national forests. Shade-intolerant tree species, encouraged by even-age management, grow faster than shade-tolerant species, and when it comes time to harvest, clearcutting is normally more cost effective, requiring fewer entries and roads into the forest.

An argument can be made that clearcutting and other even-age management strategies are cost effective in the short run, but that the cumulative ecological impacts of even-age management can reduce forest productivity in the long run, especially where intensive site preparation techniques are used. Evidence exists to support such a statement, but the magnitude of the decline in productivity is debatable. And to some extent, this decline can be mitigated through development and application of new technologies.

Would proscribing even-age management be economically efficient, assuming a management regime for federal forest lands that emphasizes non-market resources, long-time horizons, and maintenance of ecosystem integrity? Not if the goal of management is to establish and maintain forests of tree species such as

lodgepole pine, southern yellow pine, aspen, and oak; not if the goal of management is to provide habitat for wildlife that require successional stages typical of forests under even-age management such as bluebirds, indigo buntings, yellow-breasted chats, blue-gray gnatcatchers, American woodcock, moose, snowshoe hares, chipmunks, and red-backed voles, to name but a few such species.

Equity

The benefits and costs of enactment of H. R. 1164 would not be distributed evenly across society. The beneficiaries would be those whose forest activities are adversely affected by even-age management and the general public, to the extent that the bill would conserve biological diversity.

The losers, on the other hand, would be those who benefit from even-age management, such as those who would be adversely affected by a rise in the per unit cost of timber harvesting on federal forest lands and the resulting increase in prices of wood products. Such losers would include federal timber purchasers and processors and new home purchasers and remodelers. Perhaps some kinds of hunters and birdwatchers would lose as well.

Social Acceptability

Few would argue that a clearcut is aesthetically pleasing, and so a statutory prohibition against its use in federal forest lands would probably be socially acceptable. The timber industry and most professional foresters would object: the former, largely on efficiency grounds, and the latter, as an unwelcome statutory infringement on the practice of forestry. Some wildlife professionals would side with professional foresters.

Formulating public policy that is socially acceptable is one thing. Formulating public policy that is socially responsible is another. And neither is a sufficient criterion by itself for favorable consideration by Congress. H. R. 1164 may be socially acceptable, but serious reservations exist as to whether it would be socially responsible. The problem is less with the purposes of the bill, than it is with the means provided for achieving them, which brings me to administrative practicality.

Administrative Practicality

Can a federal agency like the Forest Service or the Bureau of Land Management or the Fish and Wildlife Service accomplish the purposes of H. R. 1164 with the means that would be statutorily provided? Of course, the answer is no. Biological diversity would not be unequivocally conserved on federal forest lands by banning clearcutting and other forms of even-age management for the reasons given above.

H. R. 1164 would not make clear the objectives of forest management for federal forest lands. Instead, it would confound them. It would not improve agency decision-making. It would simply preclude use of even-age management.

An Alternative

As an alternative to H. R. 1164, I would suggest the Subcommittee consider developing legislation amending the Multiple Use-Sustained Yield Act of 1960 that would list biological diversity as one of the resources contained in the first sentence of section 1 and, thereafter, that would make simple conforming changes in the remainder of the five-part statute. The fact is biological diversity is no less a resource than outdoor recreational sites, range forage, timber, water, and wildlife and fish. Indeed, it is a resource essential to human survival, at least as we know it.

Furthermore, I would suggest that the Forest and Rangeland Renewable Resources Planning Act of 1974 as amended, the Federal Land Policy and Management Act of 1976, the National Wildlife Refuge System Administration Act of 1966, and the National Indian Forest Resources Management Act be similarly revised: that biological diversity be one of the goals for management of these lands, and that it is done so with the

intent of providing a system of representative, sustainable forest ecosystems, well distributed across the landscape of the United States.

I would also suggest the Subcommittee neither prescribe nor proscribe management strategies, technologies, or techniques in this proposed legislation. They are not the problem. The principal problem is the ambiguity with which the management goals of federal forest lands have been articulated. Authorizing committees say one thing; appropriations committees say another. And the agencies seem to pick and choose between them, as it serves their purpose.

Conclusion

In conclusion, I cannot recommend passage H. R. 1164, for it is fundamentally flawed. Its scope is too small and the means provided will not lead to unambiguous accomplishment of its expressed purposes.

Thank you.

STATEMENT OF
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Before the
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture

United States House of Representatives

A hearing on H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993, and review of appropriate criteria, goals, implementation, and application of ecosystem management on public lands.

October 28, 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

H.R. 1164 has some positive points and some points which need improvement.

This statement will:

1. describe the positive points and the areas needing improvement;
2. give a scientific and technical background to the concept of "ecosystem management" to explain the positive points and areas needing change;
3. give specific comments and suggestions for the bill and for "ecosystem management" in general.

I. POSITIVE POINTS AND AREAS NEEDING IMPROVEMENT

THE POSITIVE POINTS ARE:

1. The bill recognizes conserving biodiversity and protecting native ecosystems as a way of achieving a variety of goals. This approach will probably be more effective than trying to manage for a variety of individual objectives--such as protection of one species or providing one commodity.
2. The bill also recognizes that harvesting trees and forest management are not incompatible with achieving these values. In fact, timber produced from wood is an ecologically valuable substitute for more polluting substitutes such as steel, aluminum, concrete, brick, or plastic.

THE AREAS WHERE THE BILL NEEDS IMPROVEMENT ARE:

1. The concept that all native biodiversity can be protected without "even-age" management (as defined in this bill) is based on a long-held, appealing, but scientifically outdated ecological concept;
2. The bill tries to prescribe a very uniform prescription to forests which are extremely varied in vegetation, climate, soils, and natural disturbance regimes;
3. The descriptions of adverse effects of "even-age" logging are incorrect in two ways:
 1. They generalize from special cases to "even-age" logging in general;
 2. Many of the same impacts can result from specific cases of "uneven-age" logging, natural disturbances, or a lack of any disturbances;
 3. It does not describe some of the benefits of "even-age" logging.
4. The bill tries to impose a uniform, "top-down" prescription to forests, rather than allow prescriptions to be developed based on needs of each landscape or ecosystem.

SCIENTIFIC AND TECHNICAL BACKGROUND**CHANGING CONCEPT OF FOREST ECOSYSTEMS**

Until recently, forest communities were thought to exist naturally in a benign "steady-state," sometimes associated with "climax" or "old growth" forests (Oliver 1992). Disturbances were considered external to the system, usually artificial, and generally harmful. The steady-state forest was assumed to be most conducive to stability and diversity. Preservation of all species, it was believed, could be practiced by maintaining the forest in a "natural," old condition either by avoiding human intervention or by mimicking the alleged "natural" process by "uneven age" management.

Within the last few decades, this "steady state" concept has gradually been losing scientific credibility. Presently, it is not the predominant theory. It is now accepted that many large and small disturbances periodically occur to forests (Figure 1). Forests regrow through a succession of structures (Figure 2). Each structure is suitable for some plant and animal species and not for others. As the structure changes through growth or disturbances, plant and animal populations change through migration, growth, dormancy, and death. Forests of various structures were somewhat randomly distributed across the landscape before human populations increased.

Natural disturbances included wind, fire, floods, insect outbreaks, and combinations of these and other disturbances. They left a kaleidoscope of structures across the landscape. Some areas were more denuded of vegetation and wood, eroded, and depleted of nutrients where reburns or hot fires occurred several years after a windstorm. Other areas contained snags and down logs. Still others contained only an understory--with a destroyed overstory. Others contained only an overstory with a destroyed understory; and still other areas may have been missed by the disturbance.

Large areas with similar structures were created where disturbances were very large; and certain plant and animal populations increased dramatically. As the structure changed, other plants and animals were favored and many previous populations declined--through migration, death, or dormancy. Many forest areas have continuously cycled through large disturbances and regrowth, creating repeated "booms and busts" in populations. Where large areas of low human population existed, relatively stable populations of plants and animals were maintained as periodic, random disturbances ensured that all forest structures were represented in the landscape.

Attempts to "preserve" forests by excluding natural disturbances or by excluding even-aged management have endangered species which depend on early "post-disturbance" forest structures. Similarly, excessive even-aged harvesting while not allowing "old growth" structural features have endangered such species as the red cockaded woodpecker and the ivory billed woodpecker.

MANAGING FOR BIODIVERSITY

Maintaining stable populations of all species by managing for the species individually is an impossible task. There are too many species, including some not yet known; and their requirements for survival are unknown. Alternatively, biodiversity can be promoted by maintaining the habitats in which species are found. In forested areas, these habitats are the various stand structures.

Stand structures constantly change through disturbances and regrowth (Figure 2). The present forest area is smaller; and forest areas are currently dissected by farms, highways, and urban areas. Consequently, animals may not be able to migrate to areas of suitable structures if large, natural disturbances and forest regrowth change the habitat in their present location.

The balance which was maintained over large areas by natural "booms and busts" in plant and animal populations may not be achieved naturally

with present human populations and forest uses. In addition, forests are needed for wood and other products, which are extremely ecologically valuable substitutes for energy-consumptive steel, aluminum, concrete, brick, and plastic.

Two methods have been suggested to maintain a diversity of stand structures:

1. set aside large reserves to be protected from all disturbances or to allow only natural disturbances; and,
2. manage forests so each landscape area contains an acceptable balance of all stand structures.

The first method is found in national parks and similar preserves in many countries. These preserves may offer large areas of older-stand structures to balance younger structures often maintained in managed forests--providing the preserves are not so geographically isolated from managed forests that species may actually be lost in either because of a lack of a balance of structures. As these parks become older and the stands age, it is becoming increasingly difficult to keep natural disturbances out. Management then depends on a costly program of protection and recovery from natural catastrophes and from human cutting and grazing. When and where economic conditions are harsh, such human use is difficult to prevent. A diversity of structures and species may or may not be maintained, depending on the area's size, the natural disturbance sizes, and the random pattern of disturbances.

A diversity and balance of stand structures can be maintained across the presently smaller and more dissected forest areas by managing forests so each landscape area contains an acceptable balance of all stand structures. This method would quickly achieve a balance of stand structures across large areas--an important consideration since many forests do not presently contain a balance of structures. The variety of structures would reduce the risk of a single natural disturbance destroying the entire area.

UNEVEN AGE AND EVEN AGE MANAGEMENT PRACTICES IN ECOSYSTEM MANAGEMENT

Management to achieve and maintain the balance of structures (for habitats) will require certain changes from usual forest management. Forest management would shift to manipulating the growing forest so it creates the appropriate structure at a given time to fit the targeted landscape pattern. Silvicultural operations would accomplish the desired changes in structures.

Many silvicultural operations would be used in ecosystem management to mimic, avoid, and recover from natural disturbances. The silvicultural operations would avoid the extremes of loss of property, life, and a balance of habitats often associated with natural forest disturbances. Where there are insufficient amounts of a given structure to achieve a balance across a landscape area, it means there is an excess of another structure (Figure 2); and active silvicultural operations would be used to create as many features of the structure in short supply as possible rapidly by manipulating the structure in excess.

Uneven-age management would be a necessary tool where more "open" (stand initiation) structures are not needed, but more "old growth" structures are needed. (For example for thermal cover or habitat for species which need "old growth" conditions which are in short supply.) On the other hand, various forms of "even-aged" management would be necessary where there is a shortage of "open" areas and species requiring this habitat are in jeopardy.

WOOD HARVESTING, COMMODITY VALUES, AND ECOSYSTEM MANAGEMENT

The term "ecosystem" is a human concept, and "ecosystems" exist at a variety of levels--from local to global. True management of ecosystems considers all levels--and humans are part of the ecosystem. Forest ecosystems are generally more diverse where human economic well-being is above the subsistence level--especially in areas of high population. Forests provide wood and other commodities which promote this well-being. If wood is not obtained from forests in the United States, forests are harvested in other areas of the world where environmental control is even less--or products such as steel, aluminum, concrete, brick, and plastic are used instead; these substitutes are much more harmful to the global ecosystem than wood products are. Harvest of wood and other commodities, therefore, can be compatible with ecosystem management.

UNCERTAINTY OF NEEDED STRUCTURES TO MAINTAIN ECOSYSTEMS

There is uncertainty of what structures and processes to maintain to ensure biodiversity is preserved. There are two approaches to dealing with this uncertainty:

1. Doing nothing in the face of this imperfect knowledge; or,
2. Managing to ensure the entire range of conditions found in nature is maintained across the landscape.

Doing nothing is based on the antiquated "steady state" or "climax" concept that forests will naturally return to a benign equilibrium if left to themselves. In fact, there is little reason to believe that forests will return to any equilibrium point (or a past, idealized equilibrium point) if nothing is done. In fact, since forests constantly grow and are destroyed, doing nothing may cause important structures (and species) to disappear for lack of activity.

Managing to ensure a range of conditions is distinctly different than past commodity management, where few silvicultural tools (often clearcutting) were used. The difficulty is determining what structures and patterns are important.

In light of incomplete knowledge about what structures are needed, the conservative approach is to maintain at least minimal amounts of all structures across each relatively small climatic, soil, and biologically uniform area. In this way, there would be maintenance of open areas ("stand initiation" stage), closed forest areas ("stem exclusion" stage), uneven-aged forest areas, and others. To be conservative, management would maintain all structures even if no presently known endangered species needed it.

There are two ways to determine the needed structures:

1. Determine the biological requirements of each species in the ecosystem. This is a time-consuming, difficult, and probably impossible task, although all progress toward such knowledge would help ensure vital structural components are not accidentally lost.
2. Determine the natural patterns and variations of disturbances and other processes and the resultant patterns.

Maintaining the natural patterns and variations through silvicultural management--and improving knowledge of patterns to be maintained through knowledge of individual species--will probably best ensure all species will be maintained. We have learned very much about disturbances, patterns, and needed structures in the past few years. In addition, natural disturbances never did or will provide a uniform or predictable set of structures; consequently, we know that existing species were somewhat adaptive in their forest structure requirements. For these reasons, exacting structural conditions will probably not be necessary to ensure all species will survive. (For example, an exact spacing, number, or size of snags or down logs is probably not as necessary as providing various amounts of down logs.)

ENSURING APPROPRIATE

THE BALANCES OF STRUCTURES ARE

MAINTAINED

Forest management has tended to reduce biodiversity and create other problems when a single (or narrow range-of) management practices were applied constantly over a large area, whether by a central mandate or by other reasons. These problems have occurred in parts of the Pacific Northwest where clearcutting was applied almost exclusively; on the other hand, in some Rocky Mountain and southeastern hardwood areas, too much uneven-aged management has led to problems.

A centrally mandated practice of "uneven-age" management will probably limit local foresters' abilities to achieve a variety of structures. The centrally mandated, uniform practice will prove to be as inefficient and ineffective as past centrally mandated practices. (As an extreme example, the central planning approach of the former Soviet Union.)

It may seem appropriate to manage federal lands through "uneven-age" management if it "balances" the non-federal lands managed on "even-age" management. Such a balance would only be effective if:

1. there were appropriate mixes of federal and non-federal lands within each local ecological unit to ensure all structures were maintained within each climatic, soil, and biological unit; and,
2. the non-federal landowners would guarantee that ALL other structures would be maintained on their lands; and,
3. various insects, diseases, fires, soil degradation, and other factors would never occur in the "uneven-age" stands on federal lands.

These three conditions rarely, if ever, occur in the United States.

SPECIFIC COMMENTS AND SUGGESTIONS

COMMENTS

Sec. 2, (b)(2). As described above, both even-age and uneven-age logging can cause substantial reduction in native biodiversity if carried to excess. For example, a recent study under my direction shows that many more trees in the forest will need to be harvested than the amount allowed in the bill to allow enough light for Douglas-fir to continue to be a part of the forests in western Washington. Other species, such as southern pines, may need much more herbicides for them to grow under the partial overstory shade.

Sec. 2(b)(3). Immobile individuals can be killed by natural disturbances and uneven-age logging as well as by even-age logging. Species are rendered extinct where ANY of these occur in extreme excess. There are also species which need edges and opening--as well as species which need "deep forests." Therefore, a mixture of all management types--even-age and uneven-age--is needed to maintain biodiversity.

Sec. 2(b)(4). This degradation of the soil can occur on some soil and climatic conditions with even-aged logging--especially if the area is not regenerated. On the other hand, in other climatic conditions, the lack of large disturbances can reduce the productivity of the soil.

Sec. 2(b)(5). The extreme loss of carbon and carbon processing ability following clearcutting occurs on certain sites--and primarily after land clearing for agriculture and following very destructive catastrophic disturbances. This contribution of carbon to the atmosphere is extremely small relative to the contribution from human burning of fossil fuels. (In fact, the greatest way for forests to reduce atmospheric carbon is to use them for wood products as substitutes for steel, aluminum, brick, concrete, plastic, and other fossil fuel-intensive materials.)

Sec. 2(b)(6). Such conditions, again, occur only on certain sites--and after logging practices more severe than practiced in nearly all forest operations in the United States.

Sec. 2(b)(7). Such stream sedimentation is primarily the result of poor road construction--especially recently. More roads are actually needed in uneven-aged management than even-age management. In addition, such sedimentation can be avoided with proper care (or alternative logging methods) in the places where it may occur--as opposed to a uniform ban on even-age logging.

Sec. 2(b)(8). Under many conditions, uneven-age management can increase insects--especially defoliating ones. Uneven-aged management very often reduces the number of species--thereby increasing the density of a single species--by eliminating those species which need much sunlight to grow. Many even-age, mixed species stands are mistakenly assumed to be uneven-age.

Sec. 2(b)(9). Many of what are considered "weed" species and "predators" are species which are natural and which need to be maintained in some areas if "biodiversity" is to be maintained. Consequently, areas are needed where these species are certain to thrive.

Sec. 2(b)(10). Recreationists often use a variety of structures across the landscape--including openings created by even-age management. A diversity of even-age and uneven-age management practices would create this variety, while providing the other values.

Sec. 2(b)(11). Some of the native biological resources humans depend on grow exclusively in nearly full sunlight conditions, which would not be created by the "uneven-aged" management described in this bill.

Sec. 2(b)(12,13,14, and 15). To achieve the goals stated in these sections--maintenance of ecosystem processes, biodiversity, and quality of life--the full natural range of patterns and processes needs to be maintained across each landscape area--including openings and dense forests created by even-age management and other forest structures created by uneven-age management.

Sec. 2(b)(16). It is uncertain uneven-age management would be more labor intensive. In fact, a variety of even-age and uneven-age forest operations to produce a variety of forest habitats and commodity products could employ more people and provide many, ecological sound benefits to society.

GENERAL COMMENTS ON ECOSYSTEM MANAGEMENT

It would be much more effective to legislate a goal such as maintaining a fluctuating balance of all structures across the landscape. Because of the many, various silvicultural prescriptions needed to achieve the goal, legislating any prescription (such as uneven-age management) will not achieve biodiversity.

The exact pattern of and amount of each structure needed for optimum balance of species is not known (and may in fact need to fluctuate somewhat); however, the extreme excesses and shortages of structures can be modified through silvicultural operations while more is being learned through adaptive management.

The goal of ecosystem management would be the maintenance of this balance, while commodities such as timber would be a byproduct, rather than an independent goal. Jointly producing commodities and other values--including employment--in this way will prove to be economically efficient. Maintenance of these structures could provide economically efficient employment and a relatively steady, sustainable flow of a variety of kinds of wood--including very high quality wood.

Implementation on public lands will require training at the local manager level and continued development of landscape assessment tools (e.g., computer hardware and software). It may be appropriate to consider ways to encourage similar management on non-federal lands at the same time, since most species do not understand human-imposed property boundaries. Management on non-federal lands can be done with far less harm to the economy and the public treasury and with far more benefits through appropriately planned incentives than through regulations. At present, however, the forest practice boards responsible for forest practices on private lands are not empowered to give incentives--only to regulate. It will require an adjustment within and among agencies to allow incentives to be effective.

(The concepts and specifics referred to in this statement are based on a variety of testimonies, analyses, and scientific and technical papers. The author will provide references upon request.)

(Attachment follows:)

Figure 1. Our scientific concepts of how forest ecosystems behave have changed dramatically over the past few years, from one of "natural equilibrium", "human intervention is bad", and "balance of nature", to "constant disturbance and fluctuation." Many of our ecological concepts and management approaches are based on the old way of thinking.

THE NEW YORK TIMES

SCIENCE TUESDAY, JULY 31, 1979

New Eye on Nature: The Real Constant Is Eternal Turmoil

The 'balance' theory
may be more poetry
than science.

By WILLIAM K. STEVENS

In a revision that has far-reaching implications for the way humans see the natural world and their role in it, many scientists are forsaking one of the most deeply embedded concepts of ecology: the balance of nature.

Ecologists have traditionally operated on the assumption that the normal condition of nature is a state of equilibrium, in which organisms compete and coexist in an ecological system whose workings are essentially stable. Predators and prey — moose and wolves or cheetahs and gazelles, for instance — are supposed to remain in essentially static balance. Anchovies and salmon reach a maximum population that can be sustained by their oceanic environment and remain at that level. A forest grows to a beautiful, mature climax stage that becomes its naturally permanent condition.

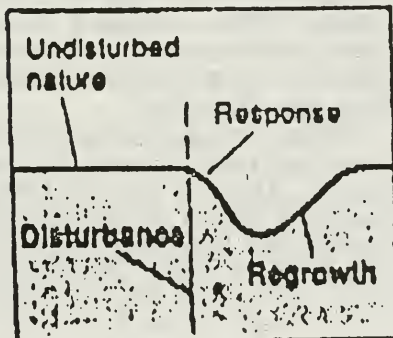
This concept of natural equilibrium long ruled ecological research and governed the management of such natural resources as forests and fisheries. It led to the doctrine, popular among conservationists, that nature knows best and that human intervention in it is bad by definition.

Now an accumulation of evidence has gradually led many ecologists to abandon the concept of decline as irrelevant, and others to alter it drastically. They say that nature is actually in a continuing state of disturbance and fluctuation. Change and turmoil, more than constancy and balance, is the rule. As a consequence, say many leaders in the field, textbooks will have to be rewritten and strategies of conservation and resource management will have to be rethought.

The balance-of-nature concept "makes nice poetry, but it's not such great science," said Dr. Steward T. A. Pickett, a plant ecologist at the Institute of Ecosystem Studies of the New York Botanical Garden at Millbrook, N.Y. He was a co-organizer of a symposium that explored the matter yesterday in Snowbird, Utah, at the annual meeting of the Ecological Society of America, the nation's pre-

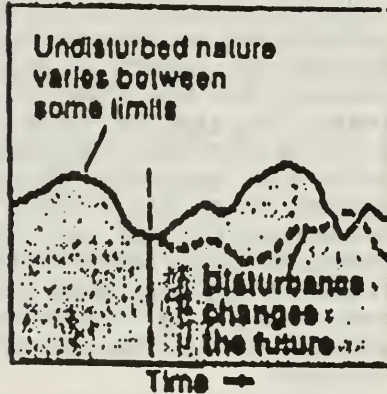
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Changing View Of Nature



Time →

In the past, ecologists assumed that nature undisturbed was a constant state to which ecosystems and populations of animals would return after disturbances like fires.



Many scientists now believe this model to be incorrect. Populations and ecosystems, they say, always vary within some boundaries and there is no "perfect" state to which their numbers and growth will return if they are disturbed.

Source: Daniel B. Botkin

The New York Times

characterizes what is going on as "a major revision of one of our basic assumptions of how the natural world works." The developing conviction that nature is ruled more by flux and disturbance is "becoming the dominant idea," he said.

"There will always be people who will cling to old ideas," said Dr. Simon A. Levin, a Cornell University ecologist who is the incoming president of the Ecological Society. "But certainly the center of mass of think-

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say that ecological communities of plants and animals are inherently unstable largely because of idiosyncratic differences in behavior among communities and individuals in them. A super-aggressive wolfpack leader, for example, can greatly increase the pack's hunting efficiency and destabilize the ecosystem — just as the death of a pack leader can promote instability by causing the pack to disperse.

But even if ecological communities do display some sort of internal equilibrium, many scientists believe, external disturbances like climatic change, year-to-year variations in weather patterns, fires, windstorms, hurricanes and disease seldom, if ever, give the communities a chance to settle into a stable state. In this view, the climax forest, the neatly symmetrical predator-prey relationship and the bumper fish population become transient conditions at best, even in the absence of human intervention.

Scientists are finding this to be true on many scales of time and space, from the glacial and global to the seasonal and local, and in parts of the world long considered the most pristine and stable like the tropical rain forests of South and Central America, for instance, or the north woods of Canada and the northern United States.

In the natural landscape, "there is almost no circumstance one can find where something isn't changing the system," said Dr. Morgan L. Jacobson Jr., who, as a paleoecologist at the University of Maine, studies ecological change as it is revealed in ancient sediments and rocks. And while there may be a tendency toward a stable equilibrium, he said, "It's never allowed to get there, so we might as

well not expect it to exist."

In this developing new perspective, humans are emerging as just one of many sources of ecological disturbance that keep nature in a perpetual state of upsurge. The question of whether humans should intervene in natural processes is moot, ecologists say, since humans and their near-human ancestors have been doing so for eons, and ecological systems around the world bear their indelible imprint.

The supposedly pristine rain forests of Latin America, for instance, owe some of their character to the intervention of humans who planted and transplanted trees and other plants throughout the jungle. And the supposedly unspoiled Serengeti plain of Africa, some ecologists are convinced, owes its tremendous abundance of grazing animals at least partly to human-set fires that created savanna habitats.

The real question, ecologists say, is which sort of human interventions should be promoted and which opposed.

One of the biggest human interventions, some say, is taking place now as people pour heat-trapping chemicals, mainly carbon dioxide, into the atmosphere. Many climatologists expect that this will cause the Earth's climate to warm significantly, causing especially widespread ecological dislocation.

The temperature of the earth has shifted up and down many times in past eons, ecologists point out, and ecosystems have always adjusted. But this human intervention, scientists say, threatens to force, in a century or less, vast climatic and ecological changes that have usually taken millennia. Ecologists fear that

this time, ecosystems will not adjust rapidly enough to stave off catastrophe for many species.

Moreover, some ecologists say, people are eliminating some of the diversity of habitat — and therefore of species — that other natural disruptions create and promote. "We threaten that variability because we want to manage everything like corn fields," said Dr. Julie Donstow, a tropical ecologist at Tulane University. There is, she said, "a whole camp of us" opposed to this "horrible homogenizing."

A Difficulty

* * * * *

entire way, since the question now becomes: if change is constant, what is the natural state?

What, for instance, is the natural condition of the Adirondacks, where a spirited argument is going on about whether "rough" fish like suckers, shiners and chubs should be killed and removed from some ponds to make way for trout. Unlike on one side of the argument, citing a state policy that aims to "perpetuate natural aquatic ecosystems" in the area, say that the rough fish represent the natural complexity and that the ponds should be preserved in that condition. Others say that at least some rough fish are descendants of bass-like fish brought in by humans and that they have crowded out trout that flourished there earlier.

Is either of those alternative conditions "the" natural state? Or is the natural state the way the Adirondacks were when Europeans first arrived? Or, for that matter, the way they were in the millennium when the

region was buried under an ice-age glacier. Or in the succession of different forests, animals and ecosystems that followed?

"Nature can be in many conditions," said Dr. Daniel B. Botkin, an ecologist at the University of California at Santa Barbara who is a leader of the reassessment effort. Because of that, he said, conservationists and resource managers will be required to analyze a given situation more carefully than in the past and then choose which natural condition to promote rather than simply insist that humans should not upset a supposed balance of nature.

"I think he's right," said Rupert Cuthar, the president of the Defenders of Wildlife, a major conservation organization. He said that the shift in thinking "suggests that the responsibility for protecting nature will require a much higher level of intense application of science than it was ever assumed to require in the past."

Empty Theory

Observations Find No Neat Balance

In its classic formulation, the balance-of-nature concept holds that an ecosystem maintains a constant equilibrium and when disturbed, it returns to its former status when the cause of the disturbance is removed.

Many scientists now say it is clear that this is not the way things work.

"We can say that's dead for most people in the scientific community," said Dr. Peter I. Chesson, a theoretical ecologist at Ohio State University

who took part in yesterday's symposium along with Dr. Pickett, Dr. Jacobson, Dr. Bockin and Dr. Denlow. The other participants were Dr. Margaret M. Davis, a paleoecologist at the University of Minnesota who helped organize the symposium and Dr. Judy L. Meyer, a stream ecologist at the University of Georgia.

Many observations of the behavior of animal populations in the wild, says Dr. Bockin, do not support the assumption of real balance predicted by traditional ecological theory. One aspect of the theory says that when a population of animals moves into an area, it grows gradually to a level of abundance at which its environment will allow it to be sustained indefinitely, and then remains at that level. Another says that predator and prey populations in a given ecosystem oscillate in numbers, with one population at a peak while the other is at a low point and vice versa, thereby creating an equilibrium over time.

But in real life, says Dr. Bockin, "when you introduce a population to a new area it goes up and then crashes, and then it doesn't remain constant. The long-term numbers vary and are much lower" than predicted by the theory. Similarly, he said, a number of studies and observations, in the laboratory as well as the wild, show that predator-prey populations do not oscillate stably and predictably. Instead, they either fluctuate wildly and unpredictably or the prey species is eliminated and the predator species dies of starvation. In one famous ex-

* * * * *

For, according to Dr. Bockin for years, he said, international regulations of commercial fishing determined allowable annual catches by calculating maximum sustainable

yields according to equilibrium theory. The theory was also a poor guide. Dr. Dotkin said, that population of commercial fish, suffered catastrophic declines in the 1930's and 1960's and since then has not recovered.

Managers of fisheries are trying to move away from that theory now. He said, by analyzing the more complicated factors that actually determine fish populations. Among these, for example, are the environmental disturbances that largely determine the size of a given year's hatchling of young fish. He estimated that keeping track of these varying "year classes," managers hope to adjust catch quotas year-by-year and avoid wiping out an entire class.

Some scientists are not quite ready to abandon entirely the concept of an inherent tendency toward equilibrium in ecosystems. A kind of equilibrium, they say, may exist on many scales of time and space.

Scale, in fact, may be very important. While there may be enormous, devastating disturbances and fluctuations among small populations in small ecosystems, says Dr. Pickett, the fluctuations may be dampened when the larger picture is considered where a kind of equilibrium might exist. An annual population that falls in one environment might rise in another to make over a wider area. Dr. Dotkin also said it is quite possible that while a given locality's ecology would change markedly over thousands of years, there could be recurring similarities — and thus a kind of floating equilibrium — in intermediate time scales.

That, in fact, is what Dr. Cleland, the theoretician, postulates. There

may, for instance, be a limited range in which an animal population fluctuates over several hundred years. An equilibrium could be calculated by taking the average of the fluctuations. But it would be a "real mix-up," said Dr. Winston, to equate this with anything "remotely like" the classical idea of the balance of nature.

Constant Change

Outside Factors Shape Ecosystems

Perhaps the most outstanding evidence favoring an ecology of constant change and disruption over one of static balance comes from studies of naturally occurring external factors that dislocate ecosystems.

For a long time, says Dr. Meyer of the University of Georgia, these outside influences were insufficiently considered. The emphasis, she said, was "on processes going on within the system," even though "what's happening is driven by what's happened outside." Ecologists, she said, "have blinders on in thinking about external controlling factors."

Climate and weather appear top of most among these factors. By studying the record laid down in ocean and lake sediments, scientists know that climate, in the words of Dr. Davis of the University of Minnesota, has been "wildly fluctuating" over the last two million years, and the shape of ecosystems with it. The fluctuations take place not only from eon to eon, but also from year to year and at every scale in between. "So you can't visualize a time in equilibrium," said Dr. Davis.

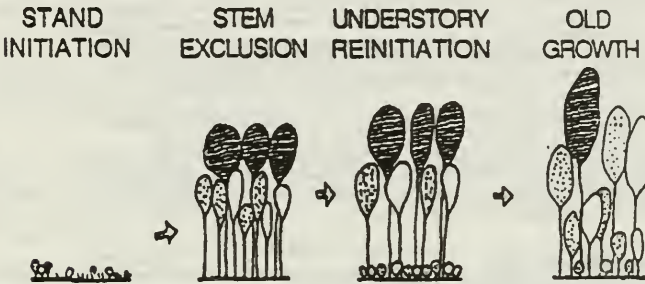
Dr. Jacobson said there is virtually no time when the overall environment stays constant for very long. "That means that the configuration of the ecosystems is always changing."

Figure 2A (after Oliver 1992b). Forest structures change after natural and human disturbances, as shown here simplistically (after Oliver 1981).

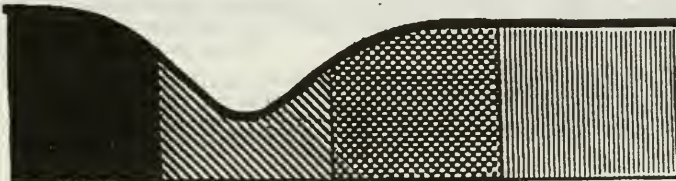
2B. Different plant and animal species are found in each structure, but all structures are necessary within a forest area to maintain biodiversity. (Vertical axis = number of mammal species; after Franklin et al. 1986).

2C. The structures change with age (shown here schematically for western Washington); however, the time before each structure was reached following a natural disturbance varied greatly.

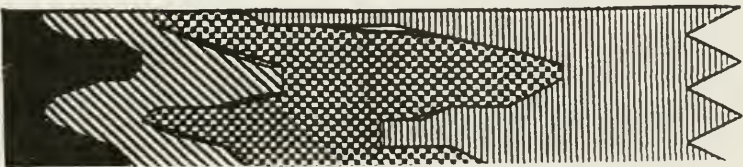
A. CHANGES IN STAND STRUCTURES FOLLOWING DISTURBANCES



B. MAMMAL SPECIES UTILIZING EACH STRUCTURE



C. PRE-1850 WESTERN WASHINGTON FORESTS





TESTIMONY REGARDING H.R. 1164 FOR THE
HOUSE SUBCOMMITTEE ON FORESTRY

William B. Willers, Ph.D.
Professor of Biology

I am a zoologist, not a forester, but during my career I have functioned in both basic and applied research. The two differ greatly. Basic research seeks to understand the natural world, while applied research is geared toward management, the manipulation of conditions to achieve a desired end. The end desired by managers is, invariably, unlike an end toward which natural process would be working.

There are two ways to view a forest. The manager sees a source of "forest products" (wood, primarily), while the ecologist, who has no management agenda, understands the forest as a community of thousands of interacting life forms. It is of greatest importance that legislators understand that no biologist on Earth can claim that the details of the workings of forest ecosystems are fully understood. Ecologists don't even pretend to know the roles played by most species in holding a forest community together.

Fundamental to any experimental science is the concept of the "control"—a standard against which experimental results can be compared. As it happens, naturally-functioning, unmanaged forest ecosystems have been so decimated that they no longer exist in most of the country. This means that forest scientists and managers operate without controls, for without unmanaged forest ecosystems to serve as standards, they cannot know what an unmanaged system is like.

The biodiversity debate should not focus on any single study but on the collective body of understanding of independent biologists. Briefly, the fragmenting, monocultural, nutrient-depleting forestry practices of the present have led, and continue to lead, to invasions by exotics, to a favoring of generalist species, and to losses and declines in unique local forms, especially those requiring undisturbed, deep-forest conditions, and those with large ranges. In my part of the country, for example, and within two human life spans, there has been a disappearance of viable populations of woods bison, cougar, elk, wolverine, moose and woodland caribou.

Apologists for current forestry practices are now citing a review paper (Pimentel, *et. al.* 1992. Conserving Biological Diversity in Agricultural/Forestry Systems. BIOSCIENCE 42(5):354-362) which concludes that greatest biodiversity is found in managed systems. What the apologists fail to point out, however, is that this is not because of any inherent

superiority of managed systems. Rather, it is because nearly all of the land is managed. In fact, the assessment of the authors that only 3.2% of the land is "protected" (their word) is an admission that large, natural ecosystems have all but disappeared.

The present state of forestry science and practice relative to biodiversity is beautifully summed up in the recently-released, million-dollar, 600-page draft Generic Environmental Impact Statement (dGEIS) prepared for the State of Minnesota by the consulting firm of Jaakko Pöyry. The dGEIS estimates the impacts on the environment from three different levels of logging, and then proposes actions. Although the authors admit that their knowledge was "fragmentary", their data incomplete, and their assumptions "unrealistic", they nevertheless prescribe clearcuts of over 10,000 acres, and state their aim to suggest "mitigation actions" that are "practical. . . in the political, financial, and administrative environments of Minnesota". And this, mind you, in spite of the fact that the study acknowledges that at all levels of logging being considered there will be declines in rare and endangered species and communities, as well as a loss of genetic diversity. These huge deforestations are to occur in what the foresters call "biodiversity maintenance areas" because, they tell us, such clearcuts mimic large-scale natural catastrophe, something they must know is false. A reviewer of the dGEIS who wanted to see a consideration of the World Conservation Union's approach of preserving 10 to 15 percent of each ecosystem in an ecoregion was answered by project manager James McNutt with "To not harvest large parts of the forest is not an option." Significantly, McNutt is a former employee of a corporation that will profit handsomely from Minnesota's deforestation. I draw particular attention to this dGEIS because it purports to represent the most up to date of forestry practice. Also, I want the subcommittee to know that it is typical of forestry in America, as I have seen it, since I began looking closely in 1968.

I support H.R. 1164 because it provides for the protection and restoration of native biodiversity. Where trees are to be cut, such conservative selective cutting as is called for in H.R. 1164 can be accomplished without destroying the forest as community. Clearcutting, by contrast, demolishes communities and should therefore be outlawed.

H.R. 1164 should be strengthened by deleting exceptions mentioned on page 7, lines 11-16, for such exceptions, once allowed, can be made to expand and multiply. Moreover, the provision that the committee of scientists consist of those unassociated with industry "within a period of 5 years" (page 8, line 2) seems a major concession to industry. There is a huge pool of independent scientists (who have never had industrial ties) from which to draw.

Although most details of ecosystem structure elude ecologists, and certainly will into any foreseeable future, there is clear understanding that biodiversity—the very complexity of genetic information and interactive process—is necessary for long-range ecosystem survival, for it is complexity that confers resiliency in the face of changes wrought by disease and climatic shifts. Continued evolution depends upon a foundation of diversity. It follows, then, that the maintenance, enhancement, and restoration of native biological diversity should take precedence when the future of public land is being planned. It is the only biologically sound approach.

William B. Wither



OSHKOSH

REBUTTAL REGARDING H.R. 1164 FOR THE HOUSE SUBCOMMITTEE ON FORESTRY

Williams B. Willers, Ph.D.
Professor of Biology

The October 28 hearings on H.R. 1164 revealed what I had suspected would be the case: The Scientific Panel consisted of applied scientists, myself being the sole exception. Their understanding of "forest" was, alas, essentially synonymous with "tree farm", for they stressed commercial production while demonstrating a lack of understanding of the urgency to protect and enhance native biodiversity on the shrinking stage for continued evolutionary process.

I am concerned about wide misunderstanding regarding the second to last paragraph in my written testimony, where I suggest a strengthening of 1164 on page 8, line 2 of the bill. To clarify and expand, I believe that the Committee of Scientists called for (page 7, lines 21—) should consist of scientists who have never had formal connection with an entity that profits monetarily from the public lands. The 5-year period called for on page 8, line 2 is much too short, for the philosophy and attitudes forged during close industrial association do not melt away in a few years. The 20 years suggested by Ned Fritz would be better, but I prefer "never".

In both written and oral testimony I drew a sharp distinction between basic and applied science. It is crucial that committees such as the one called for in 1164 consist exclusively or primarily of independent scientists whose understanding of ecosystem function is free of commercial considerations. As long as silviculturalists and their philosophy dominate such committees, those who profit from public lands will get the kind of "scientific expertise" they desire.

Congressman Harold Volkmer's statement that a ban on clearcutting is "radical" was astonishing. How wrong he was. Indeed, such a ban would be conservative and biologically sound. Likewise, I found Congressman Robert Smith's comment that 1164 should be a bill "good for silviculture" (or approximately those words) very telling, for it seemed to me to mirror the industrial bias expressed by the forest scientists. I was disappointed that both men were absent during my testimony, because I had hoped to exchange views with them, for the record.

My flight departed Washington early enough that I did not have time to hear the panel of industrialists, but I know their arguments and am not at all impressed with them.

WBW5DD-Rebuttal.For

William B. Willers, Oct 29, 1993

DEPARTMENT OF BIOLOGY & MICROBIOLOGY • COLLEGE OF LETTERS & SCIENCE
UNIVERSITY OF WISCONSIN OSHKOSH • 800 ALGOMA BLVD • OSHKOSH WI 54901-8640 • (414) 424-1102

(Attachment follows:) THE UNIVERSITY OF WISCONSIN OSHKOSH IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION INSTITUTION

SOME FORESTERS MANAGING UNDER SELECTION
November 4, 1993

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Hearing on HR 1164

October 28, 1993

House Agriculture Subcommittee on Specialty Crops and Natural Resources

re: H.R. 1164

Charlie Rose, Chairman

Mr. Chairman, and members of the Committee,

My family and I live near the village of Vallecitos, situated in the Carson National Forest of Northern New Mexico. In the Spring of 1991, we went for an outing in the woods. I knew of an ideal place off a secondary forest road from a timber sale area where I had worked a few years before. Passing through this area known as Jarita Mesa, we noted that there were a large number of blowdown trees.

These trees were initially left behind in the sale area to serve as seed trees in order to naturally regenerate stands of Ponderosa Pine. When totaled, the number of blowdowns came to more than 800. I wrote to the district ranger to express my concern that the windthrow of the seed trees on Jarita Mesa might adversely effect the natural regeneration planned there. In reply, I received a lengthy letter which basically thanked me for my comments, but contended that since I knew little of Forest Service silvicultural practices that I should probably just mind my own business and leave it to the experts in the field.

I'm not so easily dissuaded. I consulted one of the experts in the field, specifically the 1987 Ponderosa Pine Symposium report written by USDA Forest Service Plant Physiologist L. J. Heidmann. Entitled "Regeneration Strategies for Ponderosa Pine", it outlined five prescriptions necessary for successful regeneration of the species. On Jarita Mesa, Forest Service silvicultural practices were in obvious non-compliance with three out of the five and in questionable compliance with a fourth.

Eventually, it was necessary for me to point this out in a formal appeal of the district ranger's decision, the first ever filed on the Carson National Forest. Partially as a result of this appeal, a salvage sale planned for the area did not occur. However, due to Forest Service inadherence to its own scientific reports (which are paid for with taxpayer money), little successful regeneration and inappropriate silvicultural practice currently continue on Jarita Mesa. To defend such practices the Forest Service argues that each sale area is different and therefore each district must apply different management

directives. Ostensibly, it must follow that even-aged management should not be applied *carte blanche* to most sale areas. Unfortunately, this is not the case.

Let me clarify here that I am a tree cutter, not a tree hugger. I live and work in the woods. My family and I depend upon our livelihood being generated in part by harvesting forest products from public lands. I am not against all timber harvesting on the national forests. However, I am against bad management of these resources. To this degree, one of the worst practices to date is even-aged management.

Even-aged management not only disrupts the natural order of regeneration of timber specifically, but also disrupts necessary biological interactions within the ecosystem upon which this regeneration is dependent. After employing an even-aged prescription, such as a seed tree cut, a formal census of the rodent population is supposed to occur. This is necessary in order to ensure that an overabundance of rodents isn't left to eat any resultant cone crop. My experience has been that this formal census never occurs.

In this instance, there is an important chain of events that is being broken through Forest Service mismanagement. Even-aged management creates a situation wherein the majority of trees, usually the largest and most mature of any given stand, are harvested within the boundaries of a timber sale. Hawks and other raptors, which had depended upon the cover that the canopy of these trees provided, leave the harvested area for more suitable habitat elsewhere. The rodent population increases as remaining predators are insufficient to adequately control its growth. More mice and squirrels eat more pine cones which create less seed stock which means less trees are grown which results in less employment for loggers over the long term.

The Forest Service utilizes these even-aged harvest strategies with apparent disregard for the "desired future condition" as little subsequent monitoring occurs to assure the success of such a prescription. This is most disturbing given that the area where I am familiar with logging is on the Vallecitos Federal Sustained Yield Unit.

This sustained-yield unit was one of six established through an Act of Congress in 1944. It is to be managed to provide a sustainable supply of forest products, primarily saw timber, for maintenance of steady employment opportunities to the benefit of economic stability within the dependent local communities. However, stability to these affected communities through large-scale timber activity has provided little more than hand-to-mouth subsistence living for most residents. Clearly, the economics have remained stable, but at poverty levels. As long as the Forest Service continues to plan timber sales on the basis of even-aged management over wide areas of forested land and gear these sales for harvest by large scale operators whose investment in these communities is based solely upon bottom line, then this deplorable social situation will continue. Additionally, with the depletion of the timber resource also comes the loss of traditional agriculture to the area.

As a case in point, the heavy harvest of timber resources on Jarita Mesa has resulted in adverse water quality for downstream users. (Please refer to attached letter entitled "Logging Damaged Acequia Systems". Rio Grande Sun, Espanola, NM, December 27, 1990.) These users have traditionally depended upon this water for irrigation of crops. For the past few years, they have noted a disruption in both frequency and amount of flow through their hundred-year-old acequias, or ditches. This again is a direct result of even-aged harvesting practices.

One final result of these practices has been a lack of accounting for the number of seed trees left behind. Of the five timber sales that had occurred on Jarita Mesa in the late 1980's, post-harvest densities averaged 8-10 seed trees per acre. In 1991, the district ranger claimed in written correspondence that only 4-6 seed trees per acre remained. Taking into account the 800 windthrown trees mentioned earlier, that resulted in a discrepancy of about 11,600 trees with a minimum d.b.h. of 18"-20".

At the time, this timber would have been valued at about a million dollars. I inquired of the Carson Supervisor's Office what happened to it, but received no response. To leave unaccounted such a discrepancy, it becomes clear that Forest Service management of Jarita Mesa was either grossly incompetent, manifestly negligent, or completely fraudulent. Even-aged management promotes fiscal irresponsibility.

In conclusion, I hope that I have made clear how even-aged management is inappropriate on the national forests, not only for its obviously detrimental affect on ecosystems, which I have experienced first hand, but also for its adverse effect on dependable employment opportunities, rural community stability, and basic fiscal responsibility. I realize that I'm just one small voice trying to relate to you just how important it is for you to support H.R. 1164 and enact it into legislation to prevent even-aged management practices from eventually destroying our precious natural resources.

I have heard it stated that the Forest Service needs to continue clearcutting and even-aged management as tools in maintaining adequate timber supplies on the national forests. Based on my experience, I find that statement to be unfounded. Keep in mind that many years ago, the Forest Service instituted a program of complete wildland fire suppression that they have only recently admitted was inappropriate management. The national forests cannot sustain similar and potentially worse management decisions.

I have made my living as a logger on the national forests and cannot reasonably expect to do so unless such poor management of timber resources on the part of the Forest Service is adequately addressed and sufficiently remedied. The Forest Service needs to live up to its motto of "Caring for the Land and Serving People." Make them do so by passing into law H.R. 1164 now.

Respectfully submitted by:
Paul S. Lisko
October 26, 1993

(Attachments follow:)

Duel in the SUN . . . Logging Damages Acequia Systems

MEMORANDUM IN SUPPORT OF ELIMINATING LOGGING PRACTICES WITHIN THE CARSON NATIONAL FOREST

In reference to an article entitled *Duke City Cuts 45 workers*, we respond thusly:

1. For the record we are not extremist environmentalists, rather concerned *Parciantes* (landowners) who have initiated an effort to contest logging practices along drainage basins that feed our precious acequias via tributaries flowing in and along said basins.
2. We are in complete concurrence with Mr. Lopez' concern in educating the public about the realistic issues presently not being addressed by environmental assessments conducted by Forest Service agencies.
3. We totally agree and welcome the challenge proposed by Mr. Sanchez, (Duke City Vice-President of Finance) to air out concerns via the media in an effort to actually appraise all impacts subsequent to logging practices.
4. We completely acknowledge the statement proposed by Mr. Sanchez, "that the local people-the Chicanos are getting hurt; and that this area is depressed."
5. We are in complete agreement with Mr. Alier (Santa Fe national timber assistant) who states that, "the problem of contested logging practices is a national one rather than a local one", for the public is finally responding to the detriments of logging.
6. Finally, we must point out to the public in general and the U.S. Forest Service in particular that any and all environmental assessments we have witnessed so far totally fail to address the impact of logging practices on acequia systems.
7. As a result of logging along drainage basins our acequias have suffered irremediable damage. The Jarita Mesa, (El Rio District) which stretches approximately five miles along the Tusas Basin, has been depleted of timber resource, subsequently bringing about hardship to local *Parciantes* who have for many generations (since early colonial settlement in New Mexico) been economically subsisted by growing crops nurtured by the acequias.
8. Our mayordomos have for the last five years given annual reports to the *Comisarios* (comissioners) citing not only shorter irrigation seasons, but spring runoffs at an earlier date, due to increased logging along the Tusas Basin; thus removing the natural cover that previously prevailed and kept the winter snows from melting at a lesser rate.
- Not only are spring runoffs shorter, but occurring earlier, at a time when *Parciantes* can't use the water, since the weather is too cold.
9. Many residents along the Tusas Basin have noticed a decrease in water well quantity or have had a well run dry forcing some to dig costly and deeper wells due to decrease of water shed levels/aquifers, attributed to forests left barren when logged.
- 10 The acequia political system common in Northern New Mexico pre-dates back nearly 500 years and is of historical and socioeconomically significance not only to Hispanics, but all citizens in general. We cannot afford the loss of this important cultural aspect that has played a very important role in the development of the West.
11. We are appalled by the thought of dollars outweighing cultural values. If logging practices continue, as the trend has been in the past, cultural, socio-economical and political implications will result subsequently impacting not just 45 workers, but thousands of families that rely on acequias to economically subsist their families. Moreover, millions of dollars in loss of irrigable land will become a problem consequently forcing families to leave the rural areas.
- In summary let us remind the public that unless they are actively involved in the preservation of the very limited amount of timber resource left in the Northern mountains, they will succumb to long term economic depression and their children will be unable to enjoy the beauty of a forest that at one time flourished.

Acequia Jarita Assn.
Acequia Chavez Assn.
Acequia Molino Assn.

Jerry Valdez
President
Floyd Valdez
Mayordomo

Rio Grande Sun, Thursday, December 27, 1990

A4



Your Community Voice in the Carson

Re: Additional Comments For Support For
House Bill 1164 - Anti-clearcutting and Biodiversity Bill.
(Bryant Bill)



Carson Forest Watch

Box 15 Llano, NM • 87543 • 505-587-284

Oct.30, 1993

Congressman Charlie Rose
105 Cannon House Office Bldg.
Washington, DC 20515

On behalf of our citizens group in rural northern New Mexico, I am writing to express our full support for Congressman Bryant's bill - 1164, the Anti-clearcutting bill.

This letter should be submitted as an additional testimony to support Paul Lisko's testimony before your Sub-committee on Agriculture and Forests and Farms.

We would like to note that here in the Carson National Forest of northern New Mexico, the Forest Service continues to prescribe even-aged management in areas not suited to this practice, and that the silvicultural prescriptions being applied on the ground, while not called a clear-cut - function as clear-cuts in these high elevation forests.

The Forest Service continues to use over-story removals, shelterwood, seed cuts, and group selection cutting methods that basically leave the forest in a degraded and even-aged condition. Here in New Mexico, these types of even-aged forest management serve to convert our forests into single-aged and single species ecosystems. This destroys the entire biodiversity and ecological processes of these fragile forests, and look much like a clear-cut when completed.

Enclosed are photos of a timber sale on the Carson National Forest, in the Camino Real Ranger District, that was termed an over-story removal. As the photographs clearly show - this looks and functions like a clear-cut, although it was not called a clear-cut. This forest has been destroyed, and as the enclosed pictures demonstrate - even 3 years AFTER the logging, this forest remains devastated, and re-generation is not occurring.

We have called for a Congressional inquiry into this timber sale, and Congressman Bill Richardson and Senators Jeff Bingaman and Pete Domenici have all responded to our concerns with detailed letters of inquiry to the Forest Service. It is important to note that these types of treatments are being continued on timber sales throughout the Region, and many timber sales continue to use even-aged treatments on some stands. This is completely unacceptable, and will cause irreparable harm to our PUBLIC forests.

We urge your support for HB 1164 - and would like to submit this letter along with the testimony of Paul Lisko, who testified before your Sub-committee last week.

We appreciate your time on this matter,
Sincerely,
Joanie Berde for Carson Forest Watch Citizens Group

Copies to: Save Americas Forests

*Sent
Separately*

CLEARCUTTING and its effects on biodiversity

Testimony of Elizabeth Feryl on
H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993
before the Subcommittee on Specialty Crops and Natural Resources,
Committee on Agriculture, U.S. House of Representatives
October 28, 1993



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STATEMENT OF THOMAS D. HAYES:

My name is Thomas D. Hayes. I am experienced in natural resource management activities within forest ecosystems. I am writing this statement in support of the proposed "Forest Biodiversity and Clearcutting Prohibition Act of 1993" (H.R. 1164). There is an increasingly urgent need to conserve native biodiversity in federal forests, through the replacement of destructive even-aged management, including clearcutting, with selection management. I appreciate the opportunity to present the following specific reasons for my endorsement of H.R. 1164, in order to supplement my testimony on October 28, 1993.

I. RELEVANT EXPERIENCE

Though I am experienced in forest conservation in several regions of the United States, most of my work experience involves the forests of East Texas and West Louisiana, where I have personally conducted numerous ecological baseline and impact analyses on a total of over 550,000 acres. I have also planned and implemented management programs for both private and public forests, primarily in East Texas. As the author and co-author of numerous environmental impact statements, ecological assessments, and management plans for industry, other private landowners, and government agencies, my investigations have focused on the role of human disturbance in altering the dynamics and structure of ecosystems and consequently impacting the biodiversity and functional integrity of remnant natural communities. I am presently employed as an ecological consultant and college instructor while I pursue doctoral research in ecosystem conservation at the University of California at Berkeley.

Prior to relocating to California in November, 1992, I worked for over 15 years as a professional conservation biologist and forest ecologist, based in Texas. From October 1989 through October 1992, I worked as the Stewardship Ecologist for the Texas chapter of The Nature Conservancy, an international nonprofit organization dedicated to the conservation of rare species and natural communities through private action. I was the chief scientist and resource manager with primary responsibility for design, management, and monitoring of 32 Conservancy-owned preserves and numerous other conservation projects throughout the state. Before joining the Conservancy, I spent five years as a conservation biologist for the Texas Parks and Wildlife Department. My primary duties were integrated resource management and regulatory protection of natural resources, including coordination and writing of official Department responses to U.S. Forest Service (USFS) documents and activities affecting the National Forests and Grasslands in Texas. Prior to my employment as a government biologist, I worked as an ecological consultant to both industry and government agencies for over seven years, primarily as project manager/ecologist for Espey, Huston and Associates, an environmental engineering firm in Austin, Texas.

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My education includes ongoing doctoral research in forest ecosystems (University of California at Berkeley), a Master of Forest Science (Yale University, 1977), and a bachelor's degree with honors in biology (Rice University, 1975). During my career, I have written 89 publications and technical papers. My resume is available upon request and offers further detail about my experience and education.

II. EVEN-AGED MANAGEMENT DAMAGES BIODIVERSITY

In the vast majority of natural forest types in the United States, mature forests consist of multi-species, all-aged mosaics characterized by structural diversity. The natural heterogeneity of plant species and communities in undisturbed forests supports a great diversity of forest animals, due to the compositional and seasonal variety of food, shelter, and other habitat resources.

Long-term Destruction of Biodiversity: Scientific research indicates that even-aged management destroys native biodiversity for decades, or possibly forever. Duffy and Meier (1992) provide a literature review concerning the recolonization of secondary forests by native herbaceous plants. Their review reveals that recolonization by indigenous herbs is extremely slow and incomplete (Thompson, 1980), for the following reasons:

- 1) Sexual reproduction by interior forest herbs is limited by poor seed dispersal (Handel, 1976; Beattie and Culver, 1981) and low germination (Struik, 1965);
- 2) Up to one decade of plant growth is required prior to first reproduction (Bierzychudek, 1982);
- 3) Vegetative extension growth rates of these species is usually less than one meter per decade (Whitford, 1951; Sobey and Barkhouse, 1977); and
- 4) High browsing pressure on especially seedlings due to overpopulations of opportunistic herbivores such as white-tailed deer (Alverson et al., 1988).

Further evidence of the long-term adverse impact to biodiversity within secondary forests is found in studies of individual forests in the United States which reveal recovery rates for herbaceous species following disturbance of several to more than 15 decades (Flaccus, 1959; MacLean and Wein, 1977; Brewer, 1980; as cited in Duffy and Meier, 1992). In fact, British secondary forests nearly 400 years old still have not recovered their original herbaceous community (Peterken and Game, 1984). Within the United States, the original forest likely developed during a cooler and moister climate relative to the present (Delcourt and Delcourt, 1987) and, therefore, may be prevented from regenerating its full complement of species.

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Future climate change would make recovery of forest biodiversity even more problematic, as increasing temperatures and carbon dioxide concentrations would create less and less favorable conditions for recovery of the original herbaceous community (Solomon, 1986).

Based upon their own research in the southern Appalachian Mountains, Duffy and Meier (1992) report no recovery of herbaceous cover and species richness in secondary forests 45-87 years after clearcutting. Within this time frame, only one half of the species richness and one third of the total cover of herbaceous species had recovered when compared to relatively undisturbed forest. Furthermore, no trend toward recovery was detected. In fact, species richness and cover appeared to be decreasing in older secondary stands, probably due to the gradual loss of early successional herbs as the overstory canopy closes. Duffy and Meier (1992) conclude that herbaceous plants in the mixed cove forests of the southern Appalachians are unlikely to recover with the current logging cycles of 40-150 years, and predict an overall decline in regional biodiversity.

Similar declines in biodiversity resulting from clearcutting are described for salamanders by Petranks et al. (1993). While conducting an inventory of clearcuts less than ten years old and of more mature forests greater than 50 years old, they found salamander populations five times more abundant and twice as rich in species in plots in the mature forests relative to recent clearcuts. They calculate that 50-70 years are required to recover salamander populations to predisturbance levels. They also quantify the chronic depression in salamander populations in western North Carolina to be greater than one quarter of a billion individuals or nine percent below population levels absent clearcutting.

Even-aged Management Causes Fragmentation of Forest Landscapes: Even more serious than the direct adverse impacts of even-aged management on biodiversity discussed above are its indirect impacts through large-scale habitat fragmentation. The extreme patchiness of forest habitats following cyclic even-aged management is the most recognized characteristic of this management practice throughout the United States. An example of the fragmentation that accompanies habitat destruction during even-aged management is documented by Groom and Schumaker (1993) for the period 1940-1988 on the Olympic National Forest in the state of Washington. In addition to a drastic decline in total acreage of old-growth forest, their research measured a substantial increase in the number of small fragments within the remaining forest. During the period of the study, the regional forest was almost entirely broken into small patches, with an average decrease in patch size of 93 percent (reduced from 435 to 25 hectares) and a five-fold increase in the number of fragments less than 100 hectares.

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Wilcove et al. (1986) state that "fragmentation remains the principal threat to most species in the temperate zone." Fragmentation increases extinction rates of species in remnant forest patches through several mechanisms, including:

- 1) Creation of habitat patch sizes smaller than the home range of many forest species;
- 2) Loss of the full range of habitat heterogeneity necessary to sustain viable populations throughout the seasons;
- 3) Deleterious biotic and abiotic effects of surrounding lands which prevent dispersal and enhance isolation;
- 4) Edge effects which alter microclimates and increase contacts with competitors; and
- 5) Secondary extinctions due to many factors such as long-term genetic problems and increased predation.

Habitat fragmentation decreases the size and increases the isolation of local populations of plant and animal species, which leads to reduced fitness to natural selection due to dampened genetic variation and high inbreeding depression (McCauley, 1993). Isolated habitat areas experience constant turnover in species composition as species are lost and gained through both ecologic and stochastic processes, with species extinction rates increasing as areas of habitat remnants decrease (Wilcox, 1980). As habitat areas become increasingly isolated and colonization sources become fewer and more distant, colonization cannot keep abreast of extinction. Inevitably, a net loss of species occurs over time and will continue until colonization and extinction rates once again balance, but at lower biodiversity.

Small forested areas are unable to maintain populations of forest interior plants as shade-tolerant species are replaced by shade-intolerant species from the increased amount of edge (Ranney et al., 1981). Major vegetation changes caused by the edge effect extend 30-100 meters inside forest patches, depending on rather the edge is on the north or south side of the patch (Ranney, 1977; Wales, 1972). Edge effects on forest animals are significantly more pronounced. For example, edge-related predation of interior bird nests has been shown to extend 300-600 meters into forest patches (Wilcove, 1985). Future maintenance of forest songbirds will, thus, require a minimum patch size of several hundred hectares of uninterrupted forest (Whitcomb et al., 1976).

Global climate change is likely to heighten selective pressures for rapid dispersal ability which is hindered by habitat fragmentation for native forest species and enhanced by habitat fragmentation for weedy species (Quinn and Karr, 1993).

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In this way, climate change will worsen the adverse ecological impact of fragmentation by promoting the invasion of forests by "warm weather" exotic plants, which will result in even more rapid declines in native species.

Even-aged Management Disrupts Ecosystem Functions:

Structural complexity, consisting of large trees, dead and dying snags, and fallen logs, builds over time in natural forests, since the structural legacy is not destroyed by even severe natural disturbances, such as fires and volcanic eruptions (Hansen et al., 1991). The diversity of species, ages, and structure also increases forest community stability and reduces the subsequent incidence of natural disturbances, such as southern pine beetle infestations in the Southeast (Coulson, 1980).

Even-aged management greatly reduces the structural and compositional complexity of forest stands (Hansen et al., 1991). Intensive timber production severely reduces structural diversity both by removing most existing structure during harvest and by shortening succession before large structures develop. Even if large trees and snags are left in clearcuts, Hansen et al. (1991) demonstrate that such structure is a legacy from the preharvest stand and cannot be sustained under even-aged harvesting. In addition, Spies and Cline (1988) modeled the long-term loss of large woody debris under cyclic clearcutting in the Northwest and found that snag and log abundance was reduced to 30 and six percent, respectively, at the end of the first and second 100-year rotations. Even-aged management destroys species and age-class diversity by removing essentially all of the forest canopy in one or, for shelterwood and seedtree harvesting, two cuttings. Following cutting, the site is typically prepared by bulldozing, burning, and herbicide applications, for the planting or other establishment of usually a single species of a commercially valuable tree.

Disturbed site conditions cause the mobilization and loss of organic matter and essential nutrients that have accumulated over the years since stand establishment. These stores of carbon and nutrients are, in an ecological sense, indispensable investments in the energy and building blocks of the future biotic community, since they are essential prior conditions for the reestablishment of later seral communities and many presently rare species. The significant increases in soil respiration and nitrogen mineralization following clearcutting have been well documented (Bormann and Likens, 1979). This nutrient flush is concurrent with a proliferation of soil decomposers, including microflora and fauna, which can persist for as long as ten years following timber harvest (Lundgren, 1982; Paul and Clark, 1989). Undisturbed forests have zero to near-zero loss of nitrogen, whereas clearcuts result in greatly accelerated losses of nitrogen and other nutrients to stream runoff (Paul and Clark,

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1989). Nitrogen is by far the single most limiting nutrient to forest productivity in the United States.

The instantaneous exposure of the forest floor allows sunlight to decimate shade-tolerant plants and animals characteristic of mature forests and greatly increases the rate of runoff following rains; this in turn lowers the water table and leaches valuable nutrients. It is precisely this combined abruptness of unveiled light and nutrient flush which precipitates the rapid invasion of felled openings by sun-loving woody plants typical of early succession, including loblolly pine, greenbrier, dewberry, and poison oak in the Southeast. Timber removal further increases the physical damage to any residual trees and other vegetation, as well as soil disturbance and compaction leading to accelerated erosion and sedimentation.

Current Pervasiveness of Even-aged Management: The management of federal forests is hampered by a preoccupation with even-aged management. This is occurring despite the fact that federal lands that have not yet been subjected to even-aged practices conserve the most significant forest ecosystems in the country. Even-aged management poses the primary threat to the continued ecological significance of these federal forests and causes irreparable harm to the environment.

The environmental damage is perpetuated by the failure of federal agencies to obtain and apply adequate and unbiased information regarding the environmental and ecological impacts of their activities. Information sources basic to natural resources conservation, but underutilized in management planning on federal forests, include:

- 1) Controlled and replicated scientific research on the efficacy of particular management practices;
- 2) Site-specific inventories of all species and other resources prior to site activities;
- 3) Long-term environmental and ecological monitoring of baseline conditions and impacts as a guide to the implementation of resource management plans; and
- 4) Unbiased assessments of direct, indirect, and cumulative impacts to sensitive, inner forest resources before and after management activities.

H.R.1164 would establish a Committee of Scientists to provide interim guidance and reestablish a much needed, objective basis to federal forest management.

USFS management of the National Forests in Texas (NFT) is

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illustrative of the preoccupation of federal agencies with even-aged management. At the time of their acquisition in 1936, the overwhelming majority of lands that now comprise NFT were already stocked with forest stands ranging in age from six to over 100 years (Fritz, 1989). Soon after acquisition, hardwood basal area in the NFT began to be systematically reduced through girdling, herbicide application, prescribed burning, and other "timber stand improvement," in order to artificially increase pine basal area (predominantly loblolly and, to a lesser extent, shortleaf pines). Stands with ages over 70, 80, and 100 years for loblolly and shortleaf pine, longleaf pine, and hardwood, respectively, were first clearcut on the National Forests in 1964. However, well-stocked forest stands were prevalent on NFT in 1936, as shown by the 1980 age-class graph used in the 1987 Final Environmental Impact Statement, Land and Resources Management Plan, National Forests and Grasslands in Texas (U.S. Department of Agriculture, 1987; Fig. II-24, p. II-85). This graph reveals that stand ages in 1980 were predominantly 50 to more than 80 years old. By subtracting 44 years from 1980, the stand age classes six through ten of the graph would have been six to more than 36 years of age in 1936. In addition, the former forest stands whose cutting created age classes one through four and much of age class five on the graph (age 50 or less in 1980) would have been older (to more than 100 years of age) in 1936.

The implementation of clearcutting and other even-aged management in 1964 accelerated the artificial conversion of NFT to the present-day, early successional forest characterized by an overdominance of loblolly pine. The ongoing cycles of southern pine beetle (SPB) outbreaks on NFT have been due to even-aged management and inattention to thinnings and other silvicultural treatments. Such management practices create an unbalanced forest composition characterized by dense pine stands of low vigor (Balanger, 1980). These uniform, continuous pine stands provide ideal SPB habitat (Gara and Coster, 1968; Hedden and Billings, 1979).

The recurrent outbreaks of SPB are facilitating the replacement of this early successional forest with a more mature stage in natural succession: a diverse mixed-species forest. The products of East Texas plant succession on relatively undisturbed upland sites - mature hardwood-pine forests - are highly valuable ecologically due to their extreme scarcity throughout present-day East Texas, where public and private forests alike are predominantly maintained at a perpetually young successional stage through the overwhelming emphasis on the cyclic production of pine timber. The significance of the relatively few wilderness acres in NFT lies to a great degree in the unique opportunity to experience and research remnants of mature forest ecosystems that reemerge following unhindered, natural successional processes such as SPB infestations.

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The large magnitude of SPB population fluctuations on National Forests throughout much of the Southeast indicates a pervasive state of early successional imbalance within the region. This ecological disequilibrium is characterized by an overabundance of SPB-susceptible pines, which originated from the intense disturbance caused by clearcutting and other extractive land uses of the recent past. Confirming this early successional status of modern pine forests in the Southeast, Hicks (1980) states that "[g]iven time and no interference from people, the system would reestablish an equilibrium through reduction in the pine component of forests." (p. 55)

As stated by Belanger (1980, p. 177), "(s)ilvicultural practices offer the most practical and long-lasting means" of preventing SPB infestations in the Southeast. "Integrated pest management" (IPM) is a term used to describe the varying combinations of certain silvicultural tactics recommended to increase stand and forest resistance to SPB. The following list summarizes these generally accepted IPM tactics (Belanger et. al., 1979; Belanger and Malac, 1980; Hicks et. al., 1979; Thatcher et. al., 1986):

- 1) Increase dominance by hardwoods;
- 2) Maintain multiple age classes;
- 3) Promote the regeneration of longleaf pine over loblolly and shortleaf pines;
- 4) Reduce logging damage;
- 5) Thin from below to remove high-risk, suppressed trees;
- 6) Conduct intermediate cuttings to maintain a pine basal area of between 60 and 100 square feet per acre.

Uneven-aged selection management is the recommended means of preventing SPB infestations through the application of IPM (Thatcher et. al., 1986, p. 10, Table 4). The long-term approach to preventing SPB infestations would best begin with an immediate ban on even-aged pine management.

Prohibition of Even-aged Management Should Include Salvage, Buffer, and Restoration Cutting: Even-aged management should not be used during buffer cutting, restoration activities, and salvage operations following natural and human disturbances, in order to not perpetuate the significant adverse impacts associated with fragmentation and other ecological imbalances, as described above. The following examples illustrate the need for such a prohibition:

Buffer-cutting for SPB Control: The cutting of strip

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clearcuts in front of active SPB infestations predisposes the stand to recurrent SPB attacks, since an even-aged pine monoculture susceptible to SPB is perpetuated. In addition, no scientific research has proven the efficacy of buffer cutting in controlling SPB.

The toppling of a large volume of heavy, green pines into the lower layers of forest vegetation within treated SPB spots causes a severe disruption of the structural and functional integrity of the developing forest community. If left undisturbed, the standing SPB-killed pines would desiccate and disintegrate over one or two years in a gradual, piecemeal fashion. The incorporation of organic matter and nutrients into the forest floor would continue, without the large losses due to the increased rates of runoff and volatilization following felling operations (Bormann and Likens, 1979). Shade, groundwater, and nutrient pools would not be unduly disrupted and natural succession to a mature forest community, with increased biodiversity and stability, would proceed unimpeded. In the absence of cutting, the standing dead pines also provide dwelling, feeding, and resting habitats for a large variety of animal species, including birds and insects that are efficient predators of SPB. The felling of infested pines increases the dispersal of SPB allowing it to effectively escape from these native predators. Since there is abundant new evidence that natural enemies, especially insects, exhibit significant biological control of SPB, their populations should be augmented and promoted wherever possible (Payne and Saarenmaa, 1988; Stephen et. al., 1990; Turchin et. al., 1991).

Conversion of Slash Pine Stands to Longleaf Pine Stands: In Texas, the extensive clearcutting of slash pine stands in the National Forests during conversion to longleaf pine is leading to unnecessary fragmentation and reduction of existing and future foraging habitat essential to the endangered red-cockaded woodpecker (RCW). The resultant large openings also lead to poor regeneration of longleaf pines, based upon my experience with the active replacement of slash pine plantations with natural longleaf pine stands at The Nature Conservancy's 2300-acre Sandyland Sanctuary near Silsbee, Hardin County, Texas. In order to regenerate site-adapted, indigenous stocks of longleaf pine, the phasing out of slash pine plantations should be initiated selectively by felling the closest slash pines around existing longleaf seed trees scattered among the slash pines. These adjacent slash pines should be carefully felled away from longleaf seed trees to prevent damage to residual longleaf. At subsequent intervals of approximately five to ten years, the cutting of slash pines should be gradually expanded radially from the residual longleaf seed trees as longleaf regeneration progresses. This phased approach is important to maintaining an adequate basal area of pines for RCW habitat needs and to retaining a functioning, inner forest ecosystem during the

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interim period of longleaf establishment. The retention of a pine canopy also provides pine needle litter, which facilitates natural and prescribed fires that prepare seedbeds for natural longleaf regeneration.

III. SELECTION MANAGEMENT IS SUPERIOR TO EVEN-AGED MANAGEMENT

Though widely supplanted by large-scale, even-aged management in federal forest management during the past three decades, selection management is well known and has a long history as a silvicultural method for developing diverse, mixed-species stands (Smith, 1986). Currently used in private forestry across the nation, selection management could be implemented on all federal forests with minimal delay.

Selection management best mimics natural regeneration within undisturbed forests by creating openings small enough to remain under the microclimatic and reproductive influence of adjacent mature trees. The natural spatial and structural heterogeneity of mature forests also remains largely intact in the form of gaps, overstory composition, litter, dead wood, pit-and-mound topography, and microtopographic gradients. Such environmental heterogeneity is essential for the conservation of a natural diversity of plant and animal species (Hayes et al., 1987).

Though selection management may require more skill, there are many compensatory advantages of managing for natural regeneration with this silvicultural method (Baker, 1991), including:

- 1) Rapid rehabilitation of cut-over and understocked stands;
- 2) Harvesting without interrupting stand regeneration;
- 3) Reduced vulnerability to destruction by fire, biotic, and climatic agents;
- 4) High potential for upgrading stands with fast-growing, high-quality trees; and
- 5) Enhanced aesthetics and more valuable for wildlife.

Relative to even-aged management, selection management has several economic advantages. Due to the uneven-aged nature of the forest, young trees are established under old trees, thus reducing the time allocated to the small trees that neither fully occupy the soil nor support maximal foliage. In this manner, selection management achieves more complete use of growing space and greater total production of timber than even-aged management (Smith, 1986). Selection management produces higher quality sawlogs without the high cost of site preparation and planting. Due to the smaller size of individual operations and the need to

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cover more area more frequently, selection management creates more job opportunities for a greater portion of the local community. Selection management also allows for periodic cuttings which increases flexibility to take better advantage of variable market conditions and to provide more continuous income, relative to even-aged management.

The Importance of Selection Management to Maintain Endangered Species: For the reasons given in the above sections, many endangered species depend on expanses of uneven-aged mature forests, since many of these species are interior forest species. Due to its need for interior forest habitats in a region that conspicuously lacks such habitats, the endangered RCW of the Southeast is particularly reliant on careful management to re-create such habitat characteristics.

The maintenance of multiple age classes of pines within active and inactive RCW colonies and replacement and recruitment stands is necessary to provide a continuous within-stand supply of trees with pre-cavity characteristics. As shown by Conner and O'Halloran (1987), individual tree characteristics are of greater importance in RCW nesting habitat selection than general forest stand characteristics. This research documents that cavity tree variables, such as age, diameter at breast height, and crown size, are more important to the discrimination between cavity and random trees than are stand variables such as basal area and hardwood midstory encroachment. For instance, a shared characteristic of many cavity trees is a long period of suppressed diameter and crown growth, followed by subsequent release. Therefore, the retention of substantial pine basal area in midstory and understory canopy positions is important to maintain a future supply of pre-cavity trees.

Other lines of reasoning that indicate the need for multiple age classes in RCW stands relate to the tenacity of existing colonies and the evidence indicating the dependence of RCW on natural uneven-aged pine stands. The RCW maintains a tenacious hold on existing colonies, probably due to the large time and energy requirements for cavity excavation coupled with the large number of cavities needed per colony. Other reasons for this dependence on existing colonies are likely due to RCW social behavior and a lack of suitable contiguous habitat. Most new colonies form by means of "budding" from an existing colony. In fact, the successful establishment of "pioneer" colonies distant from existing colonies has only rarely been documented. In any case, the tenacity of RCW colonies dictates the need for within-stand succession of trees suitable for cavity excavation in colony, replacement, and recruitment stands. Clear evidence for the dependence of RCW on uneven-aged pine stands is provided by Platt, Evans, and Rathbun (1988), who detail the population dynamics of old-growth longleaf pine, the preferred habitat of RCW. They show old-growth longleaf pine to be distinctly uneven-

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aged as the result of continuous in-stand regeneration for at least 250 years.

In order to maintain within-stand replacement of RCW nesting and foraging habitat, midstory control should be implemented only on an as-needed, selective basis to remove individual trees by chainsaw or other hand methods. The removal of individual midstory trees should be restricted to adjacent trees that demonstrably threaten individual cavity trees, either by preventing RCW access or increasing the potential for predation or cavity destruction by other species. Care should be taken to retain midstory trees with the characteristics of pre-cavity trees, such as red heart disease and suppressed diameter and crown growth, which would benefit from release as older age classes become senescent. The abrupt removal of midstory vegetation may unnecessarily disorient and disturb the resident clan in active colonies. In order to prevent this potentially negative impact, selective midstory control, if deemed appropriate to apply throughout an active colony, should be conducted in a phased manner over two or three years. This phased removal should be coupled with long-term monitoring of continued occupation in order to adjust subsequent control measures as needed.

IV. CONCLUSION

I strongly endorse H.R. 1164 and its prohibition of even-aged forest management on all federal lands. Such a prohibition will better conserve native biodiversity and the multitude of other forest resources. The so-called "new forestry," which would leave more large standing trees, logs, and snags during even-aged management, is neither sustainable in the long term nor sufficient to protect biodiversity. As discussed above, the impact intensity and spatial characteristics of even-aged management far exceed natural disturbance regimes. This incompatibility of even-aged management with the spatial, compositional, and functional attributes of natural forests prevents the long-term maintenance of biodiversity.

The alternative silvicultural system proposed by H.R. 1164 -- selection management -- closely parallels the disturbance and recovery processes of natural forests. As defined in the bill, openings would not exceed in width the height of the forest stand and not encompass more than 30 percent of the stand within 30 years. In this manner, the harvested areas would closely mimic the interior gap-phase regeneration characteristic of essentially all mature natural forests. The openings, by remaining functional components of the forest environment, would result in a minimal disturbance to which most native forest species are maximally adapted. Not only does selection management conserve biodiversity, but it also has distinct aesthetic, environmental, silvicultural, and economic advantages, as described above.

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In summary, selection management is much superior to even-aged management and can be implemented in all forested regions of the country.

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Jerry Williams
Ouachita Watch League
531 Windamere Terrace
Hot Springs, AR 71913

501-767-2274

October 25, 1993

STATEMENT OF JERRY WILLIAMS ON BEHALF OF THE OUACHITA WATCH LEAGUE
REGARDING THE DAMAGES OF EVEN AGE MANAGEMENT

My name is Jerry Williams (Marvin G. Williams, Jr.). I reside at 531 Windamere Terrace, Hot Springs, Arkansas 71913. I am a professional engineer having received a degree of Bachelor of Science in Civil Engineering from the University of Arkansas in 1969.

I am a registered professional civil engineer in the states of Arkansas and Missouri and I have practiced engineering design and engineering oversight for 24 years. I have considerable experience in evaluating studies, research papers and other literature in order to verify whether they are applicable to a particular design project upon which I am working. My work requires a very sound application of the sciences and especially the laws of physics. A very important part of my education and experience has involved hydraulic engineering which is very appropriate in the design and assessment of facilities for repair of storm water damage. I have had hydrologists come to me to solve such problems which were beyond their scope of expertise. My engineering has involved many storm water designs including new drainage facilities and facilities to repair storm water damage. I have also designed groundwater recovery and pumping systems and erosion and sedimentation control structures for a Superfund cleanup.

I presently work for the Arkansas Department of Pollution Control and Ecology as the Technical Branch Manager of the Hazardous Waste Division and this involves considerable review of documents prepared by experts. In this position, I am very familiar with the water monitoring in the State of Arkansas and other states which is recorded with the ADPC&E or other states through the EPA Stored Data Base network.

I grew up working in my fathers sawmill located in Hot Springs, Arkansas in the Ouachita Mountain area. I attended the University of Arkansas at Fayetteville and thus spent considerable time in the Ozark Mountains of Arkansas.

The Ouachita and Ozark Mountain areas are the areas making up the Ouachita and Ozark National Forest units. I have used both of these national forests for recreation and hunting and have observed

/

considerable damage to the forest resources in the last twenty (20) years. A most obvious and devastating damage I have observed in these national forests has been significant stream channel scouring which fills in pools and smothers stream bed gravel habitat with sediment eroded from stream banks. This damage has occurred where the only significant land use change has been even age timber management by the U.S. Forest Service (see Exhibits 1, 2 & 3).

My knowledge of forest resource damage and concern for the future of our national forests led me to be a party in appeals filed against the Ozark-St. Francis (Ozark) and Ouachita National Forests Long Range Management Plans released in 1985 because of their almost total reliance on even age timber management. The Ouachita Plan was redone, but it still includes long range planning of 810,000 acres of even age management. The Ouachita Forest already has over 320,000 acres in even age pine plantations (Exhibit 4). That amounts to one-third of the suitable timber base. The new Ouachita Plan is under the review of the 8th Circuit Court of Appeals as a result of a 1990 lawsuit. The Ozark Plan was not redone, but it is the subject of a lawsuit filed in U.S. District Court in Little Rock, Arkansas. Due to my knowledge of and concern for the forest resource damage caused by even age timber management, I am a Plaintiff in both of those cases. I testified as an expert on storm water runoff damage in the Ouachita lawsuit.

My involvement in appeals of both Forest Plans led me to gather forest practice studies, research papers and literature from across the country to evaluate forest practice impacts. I also performed an analysis and literature review for an appeal of the Forest Plan for the Texas National Forests. I especially gathered this literature in order to see if the studies and research were actually representative of on the ground practices due to a common problem I have experienced in my work. I have found that it is not uncommon that studies, monitoring, research, etcetera are not representative enough of a particular practice to draw any conclusions about the particular practice in real world applications.

I have also reviewed Forest Plans, Vegetation Management EISs and timber sale environmental analyses for several national forests and found them to be very similar in their bias to favor even age management and ignore the major negative impacts of even age management. I also keep informed about the problems and goals of Forest Plans across the country due to my concern for the damages of even age management upon forest resources.

Unfortunately, my literature review found that forest practice studies and research, even though sound for what they did, were not at all representative of real world practices on our national forests. For instance, literature relied upon as a basis for forest plans and the accompanying, but separate, vegetation management plans in Region 8 were for individual even age harvest sites of 2-15 acres.. The normal even age cut in practice on both forests is about 35-40 acres

which occur annually and are scattered all over the forest. A 40 acre cut is the equivalent of 1/4 mile by 1/4 mile in size! Furthermore, the erosive power and kinetic energy of storm water runoff increases exponentially with size of opening. The design of study sites has resulted in ignoring this increased damage potential of large cuts scattered over a drainage system. The study sites have been designed to assess loss of organic soil due to concern for soil productivity and do not measure all site erosion and gully and channel erosion in particular. A most telling phrase in one particular review of southern forest practice studies admits this as follows:

"One reason small catchments were used is that they minimize the confounding effects of channel erosion, although it is recognized that even on undisturbed catchments of a few acres, much of the sediment may be contributed by channels. Because most southern streams have erodible channels, the implications of changes in flow characteristics due to forestry practices on downstream water quality are discussed." (Reference No. 1)

In these comments, I rely on my analysis included in my Affidavit in Support of Appeals of the Ouachita National Forest Plan (Reference No. 2) and I have used parts of it as applicable. In this affidavit, I analyzed the impacts of and Forest Service misrepresentation of the impacts of even age management.

Unfortunately, gully and channel erosion can be a much higher component of the erosion from a harvest site as compared to erosion of the organic layer. The accumulation of storm water runoff is what causes gully and channel erosion due to increased kinetic energy from higher mass (more flow) and higher velocity caused by higher flow. Since forest practice studies use individual small cuts as compared to an accumulation of larger real world cuts this is a major shortcoming of the Forest Service claiming that even age management is protective of soil and water. This total misrepresentation of impacts can easily mean that projected impacts in even age management forest plans can be off by orders of magnitude.

In addition, the erosive power of rainfall is clearly recognized by the U.S. Forest Service in its erosion guide handbook and high erosion potential exists over most national forest areas (Exhibit 5). The erosion caused by snowmelt has been shown, by forest practice studies, to be significant, but it is not reflected in the rainfall erosive index [see Footnote (1), page W 6 of Reference No. 2].

An even worse impact of even age harvesting has to do with the increased runoff caused by removing most, if not all, of the forest cover with even age management. Even in the flatter terrain of the Texas National Forests, the total storm runoff and peak runoff has been shown to be substantial with clearcutting (Reference No. 3).

Based on Forest Service research of several eastern forests, the increased storm runoff is substantial for even age cuts in conifer

types and the increase extends for 13 years, 11 years and 11 years for clearcutting, seedtree cutting and shelterwood (two stage) cutting respectively. For even age cuts in mixed types, the increase in runoff periods are 17 years for clearcutting and 14 years for shelterwood cutting. In hardwood types the increases are 17 years for clearcutting and 15 years for shelterwood cutting (Reference No. 4). This runoff increase is from time of reforestation and most even age cuts are not in a reforested condition for some time (one to three years depending on site preparation practices and timeliness and upon plantation failures) so the runoff impact period can be noticeably longer on real world cuts compared to the research study sites.

The increases in storm runoff are very high compared to the increases for selection cutting which has a small amount of increased runoff for a period of only three years. If you consider the total time influence of increased runoff for many even age cuts in a stream basin in connection with the increase in total and peak stormflow verified in Reference No. 3, the kinetic energy of runoff and erosion potential are alarming. Couple this with the fact that almost all forest drainage systems include suitable logging lands (except for wilderness, etcetera) and Forest Plans allow 10-15 % of the lands in even age plantations of 0-10 years of age and 10-15% in plantations of 10-20 years of age and the cumulative runoff is a very serious matter. Now it is easy to understand why stream systems subjected to regular even age cuts each year can be devastated as they have been in much of the Guachita National Forest (see Exhibits 1, 2 & 3).

I am familiar with the EPA Stream Water quality, monitoring data base and the Forest Service does not have any recorded data in Arkansas, Oklahoma or Texas dealing with the water quality impacts upon stream systems caused by channel erosion induced sediment loading. In fact, I have not seen any studies or monitoring from across the country that would allow the Forest Service to even remotely address this very serious impact of even age management. This impact has not been assessed in the Forest Plans of Region 8 and the Forest Service uses a shell game process to avoid this impact. It does this by not analyzing the cumulative impacts of this increased storm runoff and its channel scouring effects on the Forest Plan level and they claim this will be done on the site specific level. First, this must be done on the Plan level to truly assess the cumulative impacts. Then, on the site specific level the Forest Service only looks at one, or maybe two projects, to supposedly assess the cumulative impacts of erosion from project activities (e.g. roading, harvesting, burning, etc.) and it does not assess the downstream channel scouring effects of the increased storm runoff from the one or two projects much less all projects over the full runoff increase period for all even age cuts in a basin.

The Forest Service is well aware of this significant impact because one of its respected hydrologists reviewed literature on forestry practices in the south and he pointed out the significance of this impact as follows:

"However, increases of stormflow volumes and characteristics, not increases of sediment concentrations, may be the dominant factor affecting water quality downstream from the site disturbed," (Reference No. 1, page 2-34)

In the case of the Ouachita National Forest, it finally hired a hydrologist in 1987 to try to make an appearance of addressing this very serious problem by doing what is called a Basin Area Stream Survey. However, this study is assessing much less sensitive streams which are protected by bedrock and which do not include basins with even age cuts even approaching that of basins with normal Forest Plan dictated even age cuts. Furthermore, even if the Ouachita had chosen stream systems representative of normal even age harvesting, it would be starting with a baseline of 25 years of even age harvesting damage which was started in 1965.

This type of continuous, biased research and study has been an attempt by the Forest Service to ignore the true impacts of even age harvesting upon water quality and streams. I feel confident that Congress could have truly unbiased experts analyze the applicability of Forest Service research, studies and analysis it uses to defend even age harvesting to compare it to real world conditions on national forests and find that Forest Service information is completely unsound and unrealistic to apply to its real world activities.

I performed an analysis of the increase in storm runoff from long term river recording stations in Arkansas for areas in which the primary land use change is intensive even age timber harvesting. My analysis is included on pages W 16-W 20 of my affidavit (Reference No. 2). It is noteworthy that the Forest Service has never given substantive response to the serious issues raised in my affidavit filed in appeals of the Ouachita Forest Plan and in appeals of the Ouachita-Ozark Mountain Vegetation Management EIS. The issues raised in my affidavit dealing with storm runoff and channel erosion impacts, acidification of forest streams and metals leaching are very serious concerns for all national forests because the Forest Service has no realistic monitoring, studies or research that I have found, that is representative of typical national forest practices, to address these problems in any national forest.

A further very obvious shortcoming of all Forest Service research and studies has to do with the fact that the Forest Service uses the results from very small individual harvest sites to linearly apply the small individual site impacts to stream basins that are characteristically covered with large even age cuts every year of the 10 to 17 year period for which even age cuts contribute a decreasing (with age of the cut) level of increased runoff. The Forest Service attempts to fool the uninformed observer by claiming its use of Best Management Practices (BMPs) will mitigate storm runoff damage. This is clearly wrong and, in fact, is impossible. The Forest Service cannot stop increased storm runoff from occurring. The Forest Service would have to defy the laws of physics to accomplish such mitigation.

A Forest Service hydrologist told the Forest Service about the limits of so called filter strips in preventing damage (Reference No. 4) as follows:

"Page IV-34 of the "Plan". When and if the plan is revised, Table IV-14 should be revised to "Width of stream management zones..." because water and the materials it carries move through the channel network and not uniformly downslope."

Once this increased storm runoff occurs, the downstream stream channels are entirely at the mercy of the erosive power of flowing water and must rely on any protection that nature has provided in the way of bedrock or rock outcroppings in the particular stream. Sadly enough, many streams in our national forests are very vulnerable to erosion and that is why we have significant stream channel damage and water quality degradation in the national forests of Arkansas (see Exhibits 1, 2 & 3). Even worse, the Forest Service has exhibited a cavalier attitude in denying this impact and has not made any realistic attempt to assess this problem from a cumulative "big picture" look.

The Forest Service uses a defense of this damage by claiming that the runoff increase for a drainage basin is insignificant for the basin and it does not effect flood flows. It is possibly true that the total runoff from a particular basin for a one hundred year storm might be the same regardless of land use such as even age harvesting. But, the rise to flood level could well be quicker in forested basins subjected to even age management in such storms.

Forest Service reasoning in defense of even age cutting fails to consider that annually occurring storms can be subjected to regular storm events which have the total flow and peak flow influenced by even age harvest areas (Reference No. 3). The impact of placing numerous even age cuts in a basin is similar to placing several paved parking lots in a drainage basin resulting in the peak and total storm runoff being increased substantially. The increase is not as pronounced upon regularly occurring storms with the addition of even age cuts, but the impact is clearly there and the laws of nature can not be compelled to do otherwise by shallow, unsupported Forest Service claims.

Even more indicative of the problem is the fact that the Forest Service uses increased storm runoff (what the Forest Service calls water yield) as a benefit in its benefit-cost analysis of Forest Plans. This is true even in Arkansas where there is a surplus of storm water runoff. The Forest Service arbitrarily counts a so called benefit of storm runoff, but it ignores the devastating, natural cycle damages of increased runoff from even age cuts which are often located in drainage basins with very high energy mountain streams.

In addition to the Forest Service ignoring the impacts of even age cutting upon the naturally occurring storm runoff, it makes

similar arbitrary arguments in defense of pine farming in forests with any amount of pine existing on the forest. The Region 8 Guide calls for a minimum pine stocking of 300 pines per acre on most all logging lands and 500 pines per acre are preferred. The 300 pines per acre amounts to one pine every 12 feet. The Ouachita Plan calls for 960,000 acres of pine management types and the Ozark Plan calls for 337,000 acres of pine management types. It claims that hardwoods will be preserved on these sites through allowing them to sprout back or by leaving about one hardwood every 90 feet or so (Ouachita Plan Amendment), but it fails to recognize that the Region 8 stocking guide will result in so many pines that it be physically impossible for hardwoods to have any growing space. Again the Forest Service will have to defy the laws of physics to maintain diversity.

The Forest Service in its zeal to implement its even age tree farm plans has even ignored its own Southeast Forest Experiment Station Inventory data which is reported to the public about every 10 years in a Forest Statistics Publication (Reference No. 5). This publication shows 489,000 acres less of pine forest types than is shown in the Ouachita and Ozark Forest Plans. Also, in the case of the Ozark Forest Plan it includes 407,000 acres of commercial hardwood management types which will be used for growing about seven commercial tree species. Yet, the Forest Statistics Publication shows 35 significant hardwood species in the Ozark Region.

In the case of any national forests which have hardwood species on pine management stands and which include hardwood management types, the devastating cumulative impacts of even age management with a tree rotation age of 70 to 120 years on a high majority national forest logging lands is clearly shown by the Ouachita's wildlife handbook mast charts. The loss of most of the useful life of hardwoods for food supply (mast) and for den (hollow) or shelter trees is very obvious (see Exhibit 6). This is a very critical, but obvious, cumulative impact ignored by the Forest Service on its even age logging lands.

Conclusion:

In summary I feel I have shown some of the very obvious damages of even age management which the Forest Service ignores or glosses over in its desire for implementing even age management. The Forest Service cannot mitigate these damages with continued implementation of even age management. The Forest Service cannot defy the laws of physics and it cannot prevent the natural hydrologic cycle impacts which can severely damage vulnerable streams. Of the national forests I have inspected in Arkansas, Oklahoma and Texas, the evidence of erosion and stream damage is abundant, but the Forest Service continues to deny any damage.

Also, in the case of simplistic, relatively short rotation single species tree farms the Forest Service physically cannot maintain

diversity on logging lands and meet the Forest Plan and Regional Guide goals. Again, it would have to defy the laws of physics to do so.

Implementation of selection management would result in maintenance of fairly high forest cover at all times. This would protect the site from the erosive power of rainfall and Forest Service research has shown that the increased storm runoff is minimal for selection cutting and returns to normal in three years. With a 10 to 20 year cutting cycle with selection management it is easy to see that streams would not be impacted nearly as much as with even age cuts if they would be impacted at all by selection management.

Selection management would much better allow mini-stand management and could be used, if properly applied, to maintain a diverse forest stand at all times.

However, most importantly it will not be as easily conducive to "pie in the sky" tree farming forestry that has gotten us to the point today where we have substantially damaged our forest resources with even age management over the last 25 to 30 years.

The exhibits referred to in my comments are included with these comments. The references addressed in these comments are shown on a separate list and are available from the U.S. Forest Service or Technical Reference Libraries with the exception of Reference No. 2 which is my affidavit dealing even age management. I can furnish copies of any or all of these references if needed.

For the reasons presented herein and for the future of our national forests to provide some semblance of undamaged natural heritage for our children and grandchildren, I and the Ouachita Watch League respectfully request that the House Agriculture Subcommittee on Specialty Crops and Natural Resources fully support HR 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993.

Respectfully submitted,

Jerry Williams
 Jerry Williams, P.E.
 On Behalf of the
 Ouachita Watch League

REFERENCE LIST - COMMENTS OF JERRY WILLIAMS

1. Ursic, S.J., 1986, Sediment and Forestry Practices in the South, USDA, Southern Forest Experiment Station, Proceedings Report.
2. Williams, J., 1990, Affidavit of Jerry Williams. Discussion and Documentation in Support of Statement of Reasons for Appeal of Quachita National Forest Plan, An Assessment of Historical Impacts on the Quachita National Forest.
3. Blackburn, W.H.; Wood, J.C.; Welchert, A.T.; Fazio, P.M.; and Nevill, M.B.; 1986, Assessment of Water Yield and Quality From Intensive Silvicultural Practices and Livestock Grazing in Southeast Forests, Texas Agricultural Experiment Station.
4. Working Paper, 1982, Water Yield Response to Silvicultural Practices, Land Use Planning, Nantahala-Pisgah National Forests.
5. Hines, F. Dee, 1988, Forest Statistics for Arkansas' Ozark/Quachita Counties (2 publications), USDA, Southern Forest Experiment Station, Resource Bulletin 131 & 137.

(Attachments follow:)

AFFIDAVIT OF JAMES NORMANLOSS OF THE SHIRLEY CREEK SWIMMING HOLE

BEFORE ME, the undersigned authority, on this day personally appeared James Norman, known to me to be the person whose name is subscribed hereto, and after being by me first duly sworn, upon his oath deposed and stated:

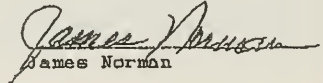
I first saw the Shirley Creek pool shown in the video in 1969. At that time the pool was over 6 feet deep at the deepest point. By the time the video was made in August, 1988, the pool was only about 3 1/2 feet deep.

The only changes in use patterns in this drainage basin during this period was a change from select harvest to clearcutting on the National Forest lands.

The pool gradually began to fill with gravel after clearcutting began in the middle seventies. The final blow may have been the result of clearcutting 136 acres of stands 22, 24, and 26 in 1986 and 1987. In all 387 acres of the basin has been clearcut to date.

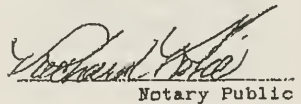
The wood ducks who once nested high above this pool are now gone.

Dated this 16 day of July, 1990


James Norman

STATE OF ARKANSAS)
) ss.
COUNTY OF MONTGOMERY)

Subscribed and sworn to before me, a Notary Public,
in my presence this 16 day of July, 1990.


Notary Public

My commission expires:

2-1-90

EXHIBIT 1

AFFIDAVIT OF VERNON RYAN

BEFORE ME, the undersigned authority, on this day personally appeared Vernon Ryan, known to me to be the person whose name is subscribed hereto, and after being by me first duly sworn, upon his oath deposed and stated:

I am a native born here in Montgomery County, Arkansas, thirty five (35) years ago. I have seen what I call a drastic change in our enviornment in the past twenty (20) years. I won't mention all of them, but one problem is the disappearance of our water dogs, that used to live in our spring branches that run through this area.

I remember as a young boy growing up in this area there were an ample supply of these slippery critters in almost every spring and small branch in the county.

As a matter of fact me and my brothers bought our school clothes and things from catching these water dogs, and selling them to a local bait shop.

I don't believe from my experience that there would be any way possible of catching them to extinction.

I honestly believe that the Chemicals the U.S. Forest Service is using to kill underbrush in clear cuts, has had a great impact on these and other creatures in our area.

One reason I am convinced that these chemicals have done this is because fifteen (15) miles south of here in a wilderness area where clearcutting and chemicals are prohibited there is still plenty of water dogs!

Anyone concerned about this matter can call me at 501-328-4685. I will be more than happy to show you what I know on this matter.

Dated this 16 day of July, 1990

Vernon Ryan
Vernon Ryan

[illegible]

Subscribed and sworn to before me, a Notary Public, in my presence this 6 day of July, 1990.

Notary Public, in my
Richard F. [Signature]
Notary Public

My commission expires:

2.1-00

EXHIBIT 2

EXHIBIT 3



United States
Department of
Agriculture

Forest
Service

Ouachita
National Forest

P. O. Box 1270
Hot Springs, AR 71902

Reply To: 2430

Date: July 28, 1988

Subject: Recent Timber Sale Appeals

To: Mr. Jerry Williams
915 Windemere
Hot Springs, AR 71913

This is in response to your undated letter concerning "recent timber sale appeals" on the Ouachita National Forest.

1. Q. How long did it take the Forest Service to transition from selective cutting to even-aged management in the 1960's?

Response:

In the early 1960's, the management emphasis on the National Forests in Arkansas was an effort to improve the existing forest through salvage and sanitation cuts (selective cuts) in order to improve growing stock. The type of "selective" cut being made at that time should not be confused with "selection" cutting (uneven-aged management) because there was no effort being made to regulate the forest or to attain a sustained yield flow of products. Because of the even-aged nature of the forest at this time, research indicated, based on the silvicultural characteristics of our species, that even-aged management was the best method for reaching a regulated forest and a sustained yield flow.

The decision to manage the forest under the even-aged system was made in 1964. By 1967, we had fully begun to implement even-aged management. Today's management strategy is the result of a series of refinements that began with that decision and has continued to this date.

2. Q. How much forest acreage has been committed to even-aged management including sales advertised through June 16, 1988? Regeneration acreage (including acreage to be restocked) and acreage sold or advertised which is not yet included in the regenerated acreage.

Response:

Records indicate that approximately 320,541 acres have been committed to even-aged management either through timber sales or through catastrophic events (fire or blow-down).

Caring for the Land and Serving People

EXHIBIT 4

FS-8200-28(7-82)



Mr. Jerry Williams

Page 2

3. Q. How much additional acreage committed to even-aged management under decisions (those to be amended must be included) signed in the past? How many years will it take to sell this amount?

Response:

The answer in #2 included acreage committed to regeneration through timber sales, but not yet cut. The sale program acreage estimate for the next two years is as follows:

<u>Year</u>	<u>Estimated Acres</u>
1988	15,135
1989	14,984

4. Q. Is it true that Forest decision notices are generally signed three years ahead of the actual sale?

Response:

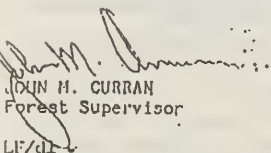
Generally this is true. We are, however, behind as a result of the re-analysis of older prescriptions in order to adequately address current issues and concerns.

Currently, we are about six months ahead.

5. Q. Please explain why even-aged management decisions signed presently would be scheduled for sale within the next year or two.

Response:

See above answer.


JOHN M. CURRAN
Forest Supervisor

LE/dl

United States
Department of
Agriculture
Forest Service
Southern Region



A Guide for Predicting Sheet and Rill Erosion on Forest Land

Technical Publication R8-TP 6

Revised December 1984

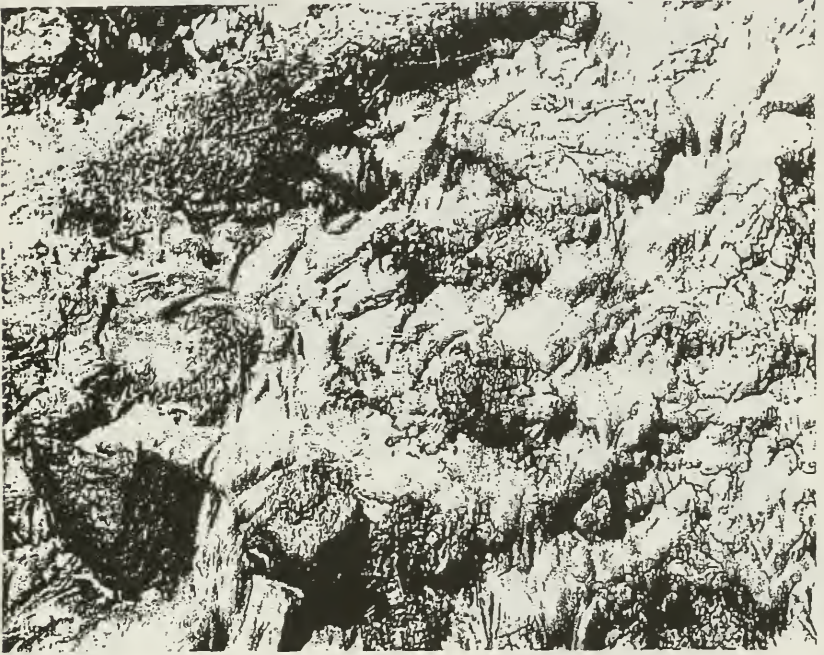


EXHIBIT 5

pg 1



Figure 1.—Average annual values of the rainfall index.¹

¹Measured in El units—(100 foot tons/acre) (inches/hour). Wislizenus and Smith (7).

EXHIBIT 5

PA 2

3

Figure 1

RELATIVE MAST CAPABILITIES OF HARDWOOD SPECIES BY AGE

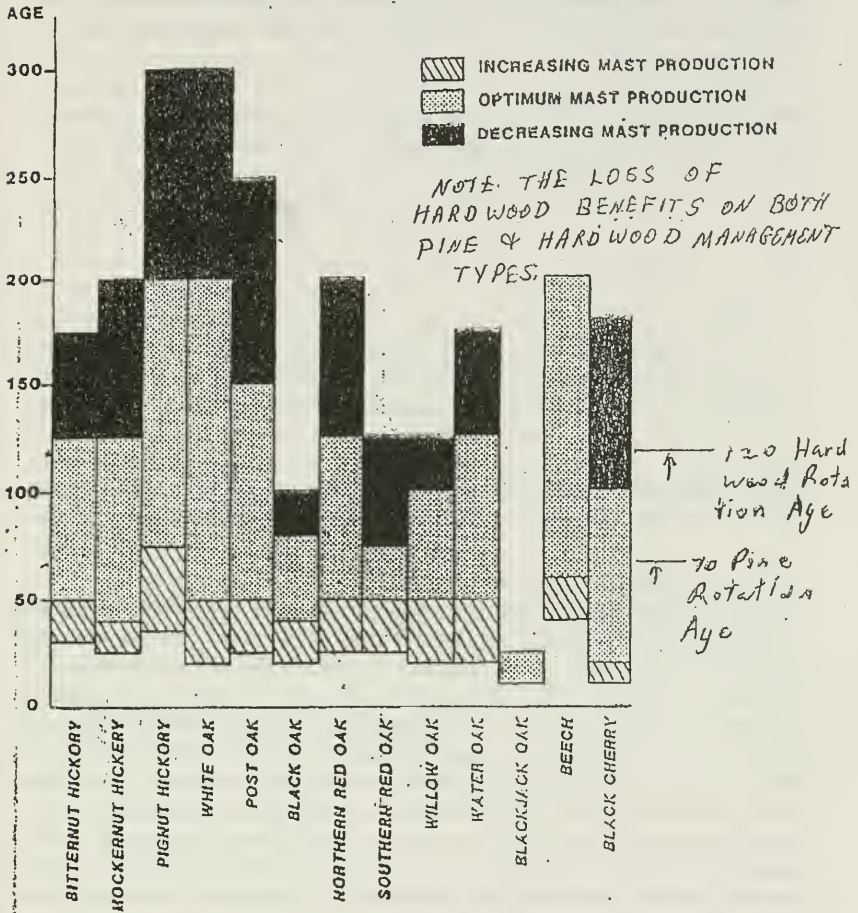


EXHIBIT 6

IN SUPPORT OF HR 1164, A STATEMENT.

by George T. Myers

Page 1

THERE IS NO CATASTROPHE AS GREAT IN SCOPE AS THE EXTENSIVE LOSS OF THE WORLD'S FORESTS AND THE CONCURRENT LOSS OF ITS FERTILE SOILS. DESERTIFICATION IS IMMENSE AND INCREASING ON EVERY CONTINENT, AND MASS STARVATION IS INEVITABLE FOR BOTH MAN AND ANIMAL.

What has this to do with H.R. 1164? It is important because for 4 years after clearcut, especially in hill country, topsoils of these denuded areas are forever lost by a deliberate act of man. It is important because the loss of forest crown also contributes to adverse weather patterns.

Can this be changed? Only by you in elected authority, and I believe you have the obligation to try.

H.R. 1164 simply asks that the current destruction of our Public Forest diversity by clearcutting be stopped. The Forest Service seeks to turn our native forests of many specimens into single-specimen tree farms in the effort to maximize yield. In production of wildlife feed, such farms can be considered sterile. The Forest Service appears not to understand our outrage at the permanent loss of our mixed natural woodlands, and the irreparable damage to the fragile ecology of the areas they have stripped.

Let's look at what they do and plan to continue:

CLEARCUT. In many areas the name describes the practice. All merchantable growth is removed, and what slash and understory is left is completely burned, or in some areas sheared and bulldozed into windrows. Some areas are reporting occasional "wildlife" trees being left, but those I have seen are saplings or dead snags, not merchantable and not big enough to hide a half-grown 'possum. They do appear to be left as a nod to "ecosystem management". Regardless of peripheral nicities, what is left is a seedbed or nursery for the chosen species selected by the Forest Service. In any case, litter and duff is disturbed or totally destroyed, exposing the topsoils to the leaching effects of sun, wind and rain. Where slopes exist, these topsoils are for the most part permanently lost. The "Service" then sends crews back in to the newly planted area(s) to "punchit out", an euphemism locally used to describe killing all volunteer growth by slashing, poisoning and girdling. It is a pure, one crop farm operation.

Page 1 of 3

IN SUPPORT OF H.R. 1164

Page 2

G. T. Myers

SEEDTREE, SHELTERWOOD CUTS. These methods are really differentiated only by the number of "mother trees" left standing. Since pine is the Forest Service species of choice in much of the South, these are the seed trees most often left. Of course when regeneration is noted, with or without the help of Forest Service plantings, the mother trees are removed. We then have a clearcut, and another even-age stand, and they will continue to kill hardwood diversity by "prescription" fire, herbicidal poisons or mechanical slashing.

PATCH CUT OR LARGE GROUP SELECTION CUT. These may be considered clearcut in smaller bites, and the results are the same.

HEAVY SALVAGE LOGGING. This is the removal of most of the trees in a given area with the stated explanation that the trees have been "irreparably damaged". Excesses occur when some loggers exceed the stated or marked bounds of such damage, and remove undamaged trees and marking them, and often the stumps after the cut. They frequently clear the entire area for the monoculture planting sure to follow.

FACT: WITH NONE OF THE ABOVE METHODS IS THERE THE POSSIBILITY OF REGENERATION OF NATIVE, DIVERSE GROWTH. THE MIXED FOREST WITH ITS BALANCED ECOSYSTEM IS THEN FOREVER GONE.

SELECTION MANAGEMENT. H.R. 1164 provides the only reasonable alternative to current practices on our Public National Forests: the return to true selection management which does not include fire or herbicides to remove or control diverse competition. This system does allow the harvest of mature trees in a manner which will lessen roadbuilding, provide greater control of logging procedures and thus reduce adverse impact on young growth. Most importantly it will not change the nature of the original forest or its ecosystem. Selection Management provides the opportunity for the Forest Service to practice, indeed return to its primary duty, that of forest protection, while monitoring a sustained yield without large scale crown removal. Logs may be extracted with the least disruption, temporary or permanent, of the native flora or fauna. It will mandate practices which create less siltation of our forest creeks and rivers and reduce aquatic kill. It will reduce blowdown and greatly lessen the terrible loss of our topsoils. In my judgement, there is no reason why Selection Management cannot be utilized in every catagory of natural forest types.

Page 2 of 3

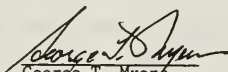
IN SUPPORT OF H.R. 1164

Page 3

G. T. Myers

I have travelled a large part of this world in my life, and I have witnessed some horrible examples of forest mismanagement. I admit my company in Liberia was part of the problem: the removal of native forest for rubber trees. I offer no apology and cry no "mea culpa", since I did what I then perceived to be my job. But if, with the benefit of hindsight, I can persuade any of you good people of the rightness of this Bill to its ultimate passage, then my life will have been of far greater value.

Thank you for the kindness and courtesy you have shown me.



George T. Myers
Retired forester.

See attachments: Resume

- (#1): Addendum, Dr. R. Zahner affidavit and research report, Menominee Indian selection management, given to Hearing Subcommittee on Forests, Family Farms & Energy; Committee on Agriculture, House of Representatives on 6/16/92, Serial No. 162-97 (Univ. of Michigan, Ann Arbor)
- : Arbor Day Foundation letter of 4/12/93
- (#2): DIPLODIA... A coming plague of Yellow Pine?

IN SUPPORT OF HR 1164

RESUMÉ OF GEORGE T. MYERS, RETIRED FORESTER.
P.O.Box 1813, Clayton, GA., 30525

Born and raised in the Helderberg Mountains of Upstate New York, I graduated in 1950 from the N.Y.State Ranger School, an extension of the N.Y.State College of Forestry. I am now 64 years of age and have retired to the North Georgia mountains, having followed my profession nearly all my working life.

After graduation I led the field reforestation program for the State Conservation Department for the 1950 season in Albany and Schenectady Counties.

I was then hired by the firm of Ichabod T. Williams & Sons of N.Y.City, and received sawmill training at their Carteret NJ Mill, then spent the next 16 months mapping out and then coordinating their 1951/52 logging operation for mahogany in British Honduras (now Belize). This was a single tree selection cut of nearly half a million b.f. from their 1600 square mile concession on the east flank of the Cockscombs.

I was then transferred to the Gold Coast (now Ghana), W. Africa Company office in the port city of Takoradi from which I purchased and shipped logs and curls of Avodire, African Cherry (Baku), African Walnut and of course African mahogany. I dealt with the local cutters from Takoradi west to Abidjan, Ivory Coast, and the logging was under the selection management system mandated by the British and French Governments. After 27 months I returned to the USA with my wife and daughter (7/54).

From then until 3/56 I worked as a surveyor and cartographer for an Upstate engineering company, when I returned to West Africa for the Firestone Plantations Co., an Akron based firm operating in Liberia the largest single rubber plantation in the world, as well as the largest single natural rubber processing plant. As Company forester and Divisional Superintendent, I was responsible for overseeing the tapping, collection and processing of the crop from the assigned sector of several thousand acres, and controlling a work force of over 400 workers. Also involved was the land clearing, operation of a tree nursery for the propagation of various clones of Hevea b. for replanting outworn divisions. The development of these clones was all important in that we were constantly striving for wind and disease resistance as well as increased yields of latex.

I resigned from Firestone in Jan. 1967 after nearly 11 years in the field, and returned to the USA to place my eldest daughter in high school (not then available on the Plantation.) I was then hired as Manager of Grounds and Special Services for the General Electric Research & Development Center, which included the maintenance and continuing development of the grounds of the old Pinkham Estate on the S. Bank of the Mohawk River in Niskayuna, NY. The 300+ acres included many exotic trees and formal gardens, as well as the G.E. K-1 facility. We were proud to have had the last pure (American) Elm Avenue, of nearly 80 large trees, in the Eastern United States.

After an accident and multiple surgeries on my spine, I resigned on disability and moved to Port Orange, Florida in Dec. of 1975. In 1977 I volunteered to serve on the Planning Commission for the City, and served 6 years, chairing the Commission for the last 4. One of our greatest achievements in this "fastest growing city in the Country" was the establishment of the City's Land Use Plan and to see it implemented after State approval. Port Orange received several "Tree City, USA" awards subsequently.

We moved to the beautiful Blue Ridge Mountains of Rabun County, GA. in Feb. 1985. As our new home and property was adjacent to a new and ongoing clearcut-and-burn process under the direction of the USFS, I took a very personal interest in this activity in the Chattahoochie National Forest. I watched the removal of all merchantable growth, mostly hardwoods in an oak/ hickory/white pine mix, with a slashing and subsequent "control burn" of the entire area. After the planting of a yellow pine clone, a crew was sent in some 3 years later to hand slash all volunteer growth and aerosol spray the raw stumps with herbicide and girdle many large trees on the perimeter of the compartment. I became really concerned when I found that this was now common practice.

I have been an active outdoorsman and forester all of my working life until my retirement in 1975, and I have never lost my keen interest. In all humility I would ask that my years of active participation in Forestry allow my observations be accepted as professional, and that they contain no personal bias of any sort.

George T. Myers

10/21/93

ADDENDUM to Statement of George T. Myers, in support of HR 1164. (1)

Ref.: Affidavit of Dr. Robert Zahner to the Hearing Subcommittee on Forests, Family Farms and Energy; Committee on Agriculture, House of Representatives, 6/16/92, Serial No. 162-97. (Dr. Zahner's report and charts attached.)

Copies of Dr. Zahner's research report attached; Univ. of Michigan, Ann Arbor, Michigan.

The Menominee Tribe (of the Algonquian Family) own and operate a natural and diverse forest on 344 square miles (220,000 acres) of Menominee County, Wisconsin, and have done so for the last 140 years under the single tree selection method. The result is an INCREASE in standing volume and quality, despite a total volume cut of TWICE in 135 years. Ignoring this success, foresters of the U.S. Bureau of Indian Affairs and the Wisconsin Dept. of Natural Resources have convinced the Menominee Tribal Enterprises (MTE) that their considerable area of aspen and jack pine would be better utilized with a clearcut, even-age management program, and MTE is currently proceeding on a 10%/year clearcut.

Mr. Chairman, and Members of this Committee, our Government agencies have been making promises to our original American residents for centuries; few have been valid. How sad that this must add to the list. There is no substitute for the natural, diverse forest, and the careful management by the selection method.

George T. Myers
Forester (Ret.)

10/13/93

MENOMINEE FORESTRY

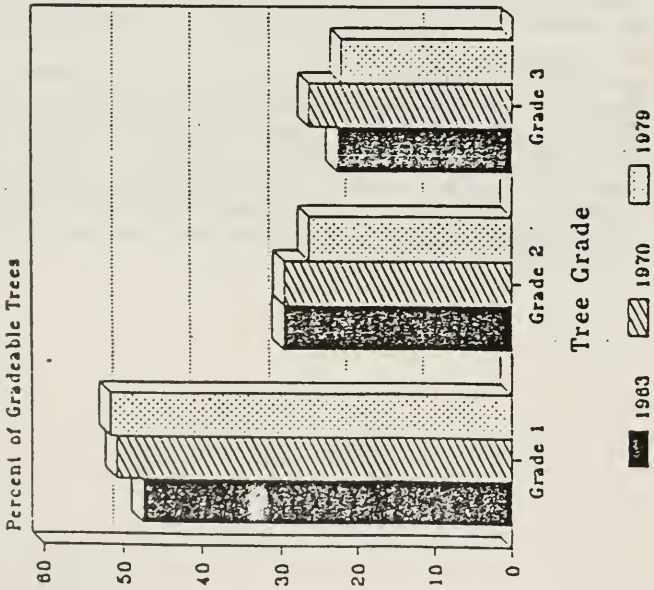
The Menominee Forest is a 220,000 acre block of commercial forest consisting of ten contiguous townships. The forest has survived as an island of sawtimber in a sea of cutover lands due to the foresight of ancestral Menominee leaders who resisted internal and external pressures to clear the forest farming or quick, short-term profit. Instead, cutting has been regulated throughout its 135 year cutting history and adherence to recognized concepts of sustained yield forest management has prevailed. The land ethic of the Menominees relates to their spiritual and religious beliefs about the land - that the land will provide for them; that they should respect the land and do nothing to harm it. Without the land, the Tribe would lose its identity and thus the land is held sacred.

Currently, the Menominee Forest a very valuable asset of the Menominee Tribe with an estimated standing timber value of \$325,000,000. It provides employment for an estimated 125 people in the Neopit sawmill and another 80 woodworkers, including loggers and forestry personnel. In addition to cut forest products, the forest provides countless benefits to the Menominee people including recreation, aesthetics, environmental protection, and a tie to their heritage and ancestry. Historically, their commitment to the recognized principles of forestry has provided for these concerns.

The responsibility for management of the Tribal Forest rests with Menominee Tribal Enterprises (MTE), the business arm of the Menominee Tribe. MTE Forestry staff is assisted by foresters from the U.S. Bureau of Indian Affairs (BIA) and the Wisconsin Department of Natural Resources (DNR). All three agencies work side-by-side at the Menominee Forestry Center under the "One Roof Concept". Agency provincialism has been replaced by a spirit of cooperation and a management philosophy of "what's best for the forest?" prevails. This arrangement pools the knowledge and resources of all three agencies into one team with a common goal - the proper management and protection of the Menominee Forest.

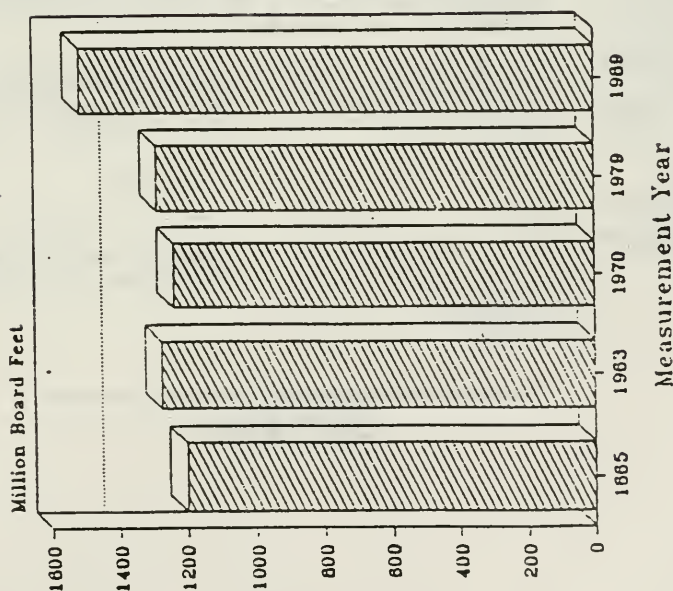
Menominee Tribal business affairs are managed by MTE. MTE operations are directed by the Company president and his staff who report to an elected twelve member board of directors. Besides the management of the Tribal Forest, the most notable venture of MTE is the operation of the Neopit sawmill. MTE provides a very diverse product line of high quality hardwood and softwood lumber, veneer logs and a variety of pulpwood species. Efforts are ongoing to improve efficiency of mill operations and diversifying product lines to provide new marketing opportunities and business expansion are important concerns of MTE.

MENOMINEE RESERVATION Tree Quality Trends



Tree Quality is another very important aspect of sustained yield forest management. In addition to producing a constant volume or quantity from the forest, it is equally important to maintain or improve the quality or grade of the trees. This chart compares the changes in tree grade between three Continuous Forest Inventory (CFI) measurements on the Menominee Forest. The chart depicts an increase in the percentage of higher quality logs and a decrease in the percentage of lower quality logs. This is significant as it points out that the practice of forestry on the Menominee Forest provides for a stable timber volume removal while the timber quality is constantly improving. The overall value of the timber is increasing through proper forest management.

MENOMINEE RESERVATION Total Sawlog Volume



Timber volume found on the Menominee Forest at different time periods is shown on the graph. When the first timber inventory was taken in 1854, it was estimated that there was 1.2 billion board feet of timber present on the Menominee Reservation. Since cutting began on the Menominee, in 1865, 2.1 billion board feet of timber has been removed. And yet, the last CFI inventory indicated that there was still 1.5 billion board feet of timber present. Stated another way, the entire volume of timber found on the Menominee Reservation when cutting began has been cut twice over the course of 135 years and yet the current volume exceeds the original volume. Sustained yield management of the forest really works!



The National Arbor Day Foundation

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April 12, 1993

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George Myers
P.O. Box 1813
Clayton, GA 30525-1813

Dear Mr. Myers:

Thank you for your note that was brought to my attention by our Member Services department.

Perhaps the enclosed July/August 1991 issue of Arbor Day will explain why we support trees as a source of renewable energy. For much more detail, I recommend our new 80-page book, "Trees for Fuelwood: A Step Toward Energy Diversity." It is available from Member Services for \$13.45 postage paid.

A key point is that while we support biomass as a renewable energy source that is less damaging to the environment than traditional fuels, we do not support conversion of natural woodlands to energy plantations. The kind of land we envision supporting fast-growing energy forests is primarily marginal farm land now supporting intensively-managed row crops, or land that is laying idle or being grazed on vegetation in poor condition. Surplus crop land of higher quality might also better serve the local economy, the environment and the nation if producing trees for energy.

We view erosion control, diversity of species and minimum use of chemicals as important components of management for energy crops, something that is possible if the landowner does the job right.

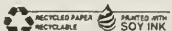
I hope this clarifies our position. Your support is appreciated and we all need to work together for better understanding of complex environmental issues and for assuring a clean, green environment for the future.

Sincerely,

James R. Fazio, Director
The Arbor Day Institute

Enclosure
JF/tmk

Americans dedicated to tree planting and environmental stewardship.



ADDENDUM to Statement of George T. Myers, in support of H.R.1164. (2)

DIPLODIA... What is it? How is it transmitted? Why does it strike fear in the very hearts of foresters and all the forest industries?

What we do know is that it is a disease that strikes the hard yellow pines of the North, especially Black or Austrian Pine and reportedly Scotch Pine as well. It has not, and perhaps can not be contained; from its origin on Long Island it has now spread to other areas of lower New York and now into New Jersey.

We know it kills yellow pine. If we have the success we had with Chestnut blight and Dutch Elm disease, and the plague spreads to the great monocultures of pine in the South and West.....

ONLY DIVERSITY IN THE NATURAL FOREST PROTECTS US.

11-5-93

Additional material to be added to the testimony of George T. Myers, given to the Subcommittee on Specialty Crops and Natural Resources On Thursday, October 28, 1993, in Room 1301 Longworth House Office Bldg.

STATEMENT:

I heard much from the learned opponents of H.R.1164 that truly dismayed me. I would like to address several issues that might serve as rebuttal or correction to some testimony given by them.

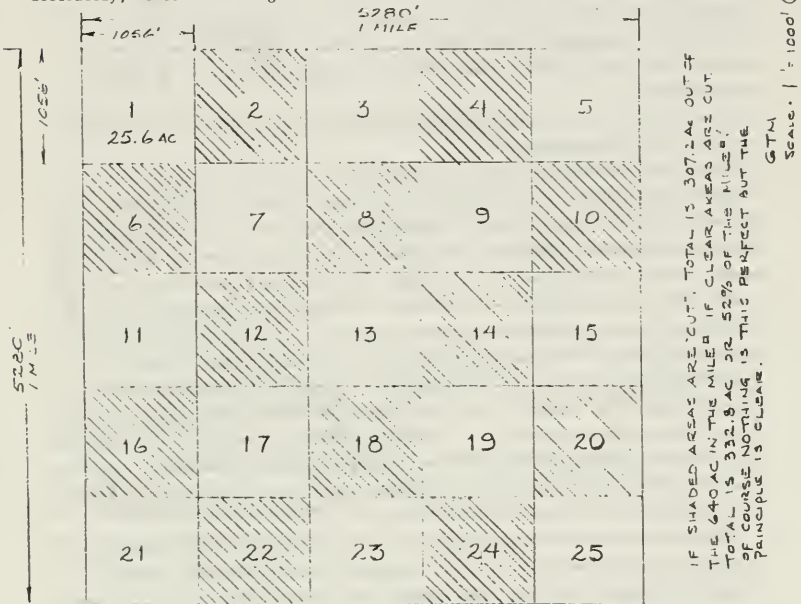
It is sad to think that the presentations might not be sound recorded, or better, video-recorded. I speak of the very moving visual testimony of Ms. Elizabeth Feryl, who recorded on film the terrible rape of our National Forests. I speak also of the sadness of Representative Pat Williams from Montana as well as the scorn of Mr. Volkmer of Missouri. I truly hope the record will be able to show these things.

Risking repetition, I must insist that the curriculum of Forestry schools in general, at least from '49 through the 50's, utilized the basic "3 P's" of standard Forest Instruction and Silviculture: PROTECTION, PUBLIC PARTICIPATION, and PRODUCTION in that order of importance. Protection was the key to successful maintenance of a National Treasure, to enable Public participation or enjoyment in reasonable safety to both human visitor and the ecosystem. Of course Production was taught in its several forms, but always Selection Management was the ^{first} method of choice, and any form of clearcutting was strictly secondary and utilized only when necessary. Normally, an area selected for harvest was cruised, on foot, measuring the various species and d.b.h. (diameter breast high, or at 4½ feet), from which came a complete plan of harvest; where roads would be located, how much we could expect to obtain in board feet depending on the constraints of the required growth curve for each particular species and site, which dictated the minimum dbh for each species. Care was taken to utilize methods which reduced to a minimum the damage to young growth and habitat of local fauna. I followed this method of harvest in Central America (Belize), and in West Africa (Gold Coast and Ivory Coast) when all three were colonies. It was not until I moved into the hills of Rabun County, GA, in the beautiful Blue Ridge (and tight up against the Smokies) of the Southern Appalachians in 1985 did I learn with shock of the "new" USFS methods pushing PROFITS above all other concerns. I find this so very difficult to understand because there really has been no profit in their management activities. In fact, studies show that half-a-billion dollars are wasted by the Forest Service EACH YEAR on their timber sales. This cannot be justified by any means.

STATEMENT In Support of H.R.1164.
George T. Myers

11/5/93 addendum, page 2

We heard the Honorable Wally Herger, Representative from N. California, who repeatedly stated that the average clearcut "did not exceed 13 acres". If so, I envy him and his constituents; here in Georgia they are closer to 40 acres. I'm sure he believes these figures given to him by the Forest Service, but I believe I can show him how the figure can be technically correct but in reality quite misleading, and I would like to have the record reflect this. According to my nephew, a Forester in New York State, and my kid brother, a Forester in Pennsylvania, the method is "shotgunning" or more accurately, "checkerboarding":



Here we have, for instance, one square mile divided by a checkerboard of 25 compartments of exactly 25.6 acres each. Since the cut compartments (here shaded) touch only at one point they are not considered to be contiguous, i.e., they do not share any measurable boundary. So the "truth" is that they are an average of 25.6 acres each, but the cut is in reality either 307.2 OR 332.8 acres out of the 640 acres in the square mile. page 2 of 5

STATEMENT In Support of H.R.1164
George T. Myers

11/5/93 addendum, page 3

I would encourage Rep. Herger to look more closely at the aerial photos of the National Forest cuts; I believe he will see that it is what is really going on in Northern California. It certainly is what is being perpetrated here in Northern Georgia, and I cordially invite him to come and see for himself... Looking at the checkerboard cut, try to imagine just how wild-life passes from one habitat to another. And remember that those cut areas will sport a new growth of monoculture pine (or aspen, or eucalyptus, or?) which will be sterile and furnish no sustenance whatever. This is what is happening in Rabun County NOW, in the Chattahoochie N.F. and on slopes approaching 30%. Until recently, the Service did not feel constrained to canvass public opinion on their clearcutting activities, most of which are accomplished by out-of-state loggers who have already ruined most of western South Carolina.

Please let me briefly describe Rabun County, because it is so outstandingly typical of USFS mismanagement:

Taken from the Cherokee Indians in the 1830's it slept quietly for nearly a hundred years before being discovered by wealthy Atlanta folks who were desperate to get out of the heat of central Georgia. These city folk displaced some of the mountain folk during the summer months, but tourism has been the big money earner since the turn of the century. New homes and hydro plants and railroads demanded timber and the lower slopes were logged over perhaps twice in 90 years, and largely allowed to regenerate naturally. The County contains about 370 square miles in total and the bulk of this very mountainous terrain is under USFS control in the Chattahoochie N.F., about 63 % to be more precise, or 148,400 acres. The balance is split up into a 10% portion belonging to Georgia Power (Hydro power watershed), 5% to Municipalities and road ROW's, leaving only 22% or about 52,500 acres available for private ownership (homeowners). Much of this is now in large cabbage farms, orchards, other farms, and the large lakes in the valleys. County population (permanent) is \pm 20,000, doubling in summer.

The greatest source of income for the County is tourism and the dollars brought in by retirees coming to also enjoy the beautiful pastels of spring foliage and flowers, the long, cool summer, and the riot of color of the 3 month autumn from the oak, maple and hickory forests. Land values have tripled in under 10 years. There are some small manufacturing jobs here, but the bulk of work is in the service field and farming, both many times the size of forest related jobs. The Forest Service still continues to cut, burn and plant pine.

page 3 of 5

STATEMENT In Support of H.R.1164
George T. Myers

11/5/93 addendum, page 4

The burning has been conducted by the use of NAPALM dropped from helicopter. We were told it was approved (in effect), and the chemical makeup was given. It was dropped on a compartment on the southern slope of Rainey Mountain east of Clayton. I wonder if the "approval" made the wildlife feel any better as they fried in the firestorm.

Despite the need for tourist dollars and that which lures them here, the USFS continues to ignore our needs. They must get out the cut, so they continue to rape the land in clearcut fashion. Please now look at the attached chart describing the actual cut from 1988 through 1992, and particularly in the Tallulah District of the Chattahoochee N.F. in which Rabun County is found.

Please note that in this 5 year period, 79.3% of the Tallulah District's cut was accomplished by clearcutting, of the purest type. Clearcutting, in the guise of "seedtree", "shelterwood" and (large)"Group Selection"(which the USFS insists is an actual variety of Selection Cut) took the rest.

Now please look at the bottom of the same chart and you will see that the total acres cut from the N.F. and the methods used over the whole Public Forest. 99.2% was even-aged cut, of which 76.3% was pure clearcut. Please also note that the 0.8% claimed to be total UNeven-aged cut of 184 acres, and realize the truth is that large group selection IS CLEARCUT, by another name. And its replacement is sure to be sterile, clonal pine.

Where, pray tell, is the "continual reduction of clearcutting" as claimed by several opponents of H.R.1164?

The Forest Service continues to put out prescription notices, and has been known in some cases to proceed before appeals have been acknowledged. Worse, prescribed (control) burns have been conducted without adequate notice, as in the case of the Napalm incident near my home.

We live in an area where (using USFS' own figures) 42% of the entire County is designated as "steep", over 16° grade, but the Forest Service has chosen to label ONLY THREE PERCENT of this land as "economically unsuitable" for timber production. You can imagine the terrible erosion and stream siltation from our frequent heavy rains (1991 gave us over 100 inches of precipitation.); and still they continue to burn, slash, poison and plant their single monoculture pine.

Most of these cuts have been checkerboarded as previously described, but as yet mostly hidden in the deep coves of our forests. We must stop it before all the cuttable lands are sporting pine, and who will come to watch the pine needles change color?

page 4 of 5

STATEMENT In Support of H.R.1164
George T. Myers

11/5/93, page 5

In 1991, the Forest Service promulgated a 10 year plan to harvest some six million board feet from over 14,500 acres. To date, they are not far from being on schedule despite our local appeals which have been upheld by the Superior Court in Gainesville, GA. Salvage cuts from "unnoticed" blow-downs of last spring, and from a suspicious fire in the very most northeastern corner of Rabun County, helped supply their shortfall because of our success in blocking several thousand acres of cutting deemed illegal.

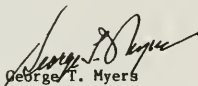
Now the Forest Service is flooding us - the public- with even-aged prescriptions on two large compartments, and prescriptions for "prescribed" burns on some 30 compartments plus application of herbicides. They obviously hope to simply overwhelm us.

Please, we need help to put a stop to this insanity, and we need it from you in Washington, folks who are not afraid to buck the bureaucracy, and bring some protection to these mountainous areas (among others) who stand to lose huge amounts of their irreplaceable broadleaf species.

I encourage anyone to read Audubon Society's Nature Guide description of the SOUTHERN APPALACHIANS, pages 81 through 91. It describes our forest as "the zenith of (forest) development". Eliot Porter's "APPALACHIAN WILDERNESS" describes it as the EDEN or CRADLE OF NORTH AMERICAN FORESTS. Please help us keep it that way.

END TEXT.

Sources: USFS
Rabun County Coalition to Save the Forests.
Forest Service Timber Policy, W.Lovell, 1991
November 5, 1993


George T. Myers
Forester, (Ret.)

(Attachment follows:)

Chattahoochee-Oconee National Forests
% of Areas Cut Using Different Silvicultural Methods

1988-92 %	Clearcut	Seedtree	Shelterwood	Group Selection
Armuchee	89.7	7.8	2.5	--
Toccoa	81.1	8.9	10.0	--
Chestatee	75.1	8.7	14.5	1.7
Brasstown	71.4	0.5	24.6	3.6
Chattooga	80.4	17.7	1.9	--
Cohutta	69.1	13.6	17.3	--
Oconee	69.3	30.7	--	--
Tallulah	79.3 *	13.9 *	3.6 *	3.2

96.8%
3.2
100.0

Total Acres	16,703	3498	1517	184
Total %	76.3	16.0	6.9	0.8

Total Acres Cut from 1988 - 1992: 21,902

1988-1992 Acres	Total Even-Aged	Total Un-Even Aged
Acres	21,718	184
%	99.2	0.8

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Testimony on HR 1164

before the House Agriculture Committee

Subcommittee on Specialty Crops and Natural Resources

Paul Frey, State Forester of Louisiana

October 28, 1993

My name is Paul Frey. I am the State Forester of Louisiana and am here today representing the National Association of State Foresters. We appreciate the opportunity to testify before this subcommittee on HR 1164 the "Forest Biodiversity and Clearcutting Prohibition Act of 1993". This is the third time the National Association of State Foresters has testified on Congressman Bryant's proposed legislation and basically our position and concerns have not changed. We also appreciate the opportunity to comment on ecosystem management on public lands, for the same reason we are concerned about H.R. 1164; because public land management policies impact state and private land management policies, directly and indirectly.

The National Association of State Foresters (NASF) represents the directors of the State forestry agencies from the fifty States, three U.S. territories (Guam, Puerto Rico and the U.S. Virgin Islands), as well as the District of Columbia. State Foresters are responsible for administering management and protection programs on state and private forest lands. Of the more than 737 million acres of forests across the United States, 358 million acres are either state or privately owned. The members of NASF promote sound forestry on all forest ownerships, and deliver a number of programs that assist private landowners in accomplishing good forest management.

H.R. 1164

H.R. 1164's stated intent is to "conserve native biodiversity and protect all native ecosystems against losses resulting from clearcutting and other forms of even-age logging on federal lands". This statement is premised on two assumptions, both of which we believe to be mistaken. One is that biological diversity on the national forests, and on American forest lands in general, is decreasing. The other is that clearcutting and other forms of even-aged management are not sound forest practices. Neither of these assumptions has any basis in fact, and H.R. 1164 represents an attempt to legislate forest resource management and policy that has no scientific basis. NASF is unequivocally opposed to this bill.

National Forest lands are managed according to a multiple use mandate that was approved by Congress over 20 years ago. National forests are managed

by resource professionals who are required by law to seek public input and utilize scientifically sound management practices. These professionals have done an excellent job of protecting and, in many cases restoring and increasing biodiversity on National Forest lands.

Clearcutting is a well-researched tool that professional resource managers can use to insure that a number of natural habitats are maintained. A wide range of species depend on the conditions that are created by clearcutting and would be negatively impacted by H.R. 1164's enactment. Clearcutting can be used properly or improperly and its use, as with any forest management prescription, comes with guidelines. The National Forest System adheres to specific guidelines (area, slopes, soils) for clearcutting and management practices on individual national forests are part of long-range comprehensive plans developed with local and regional input. H.R. 1164 would remove an important tool from the land managers arsenal, and may arbitrarily prohibit the accomplishment of important management objectives.

States have programs to promote sound forestry, either in the form of non-regulatory Best Management Practices or forest practices laws that provide guidelines for timber harvesting. In other words, sufficient mechanisms are currently in place to protect biological diversity on public, state and private lands.

NASF believes that conservation of biological diversity (and natural resources) is necessary to sustain our society. Biological resources are threatened by a range of factors. It is clear that we need to increase the public's awareness of the values of biological diversity and public participation in solutions. NASF has identified a range of management actions to be taken that are necessary for the protection and conservation of biological diversity. These do not include the prohibition of proven scientific management activities that are properly used. (NASF Report: 'The Conservation of Biological Diversity on State and Private Lands', April, 1993)

NASF also strongly objects to the provision of H.R. 1164 that requires the appointment of a committee whose members "are not officers or employees of the Forest Service nor of any other public entity, nor of any entity engaged in whole or in part in the production of wood or wood products, and have not contracted with or represented any of such entities within a period of 5 years prior to serving on such committee," to advise the Federal land management agencies on how to best conserve native biodiversity. This provision fails to recognize that scientific communities and professional foresters abide by strict ethical guidelines, and implies that employees of the Forest Service and the forest products industry are incapable of providing valid scientific input. It also appears to violate any notion of receiving adequate input from those whose legitimate interests are at stake.

Enactment of H.R. 1164 would be irresponsible public policy in addition to unsound forest management policy. It is not based on sound science, and it does the American public a disservice by promoting ideas about forestry which are not true and would increase pressure on states and localities to enact similar laws. Further, H.R. 1164 does not contribute positively to enlightening the American public about the management of their resources, and it unfairly ties the hands of those charged with managing them. It sends the wrong message for the wrong reasons.

Ecosystem Management

I am not sure that NASF, as a whole, understands yet what Ecosystem Management means in terms of criteria, implementation and application on public lands, much less private lands. NASF as a body has not yet defined what this term means to all of us. Ecosystem Management infers management in a manner that is compatible and sensitive to broader

forest ecosystems. How this is applied on the ground may vary between public land management agencies and private landowners.

State Foresters have expressed many concerns and questions about what Ecosystem Management is. We have established an internal committee that will attempt to address this over the next year. I am certain we too will be looking at what the appropriate criteria, goals, implementation and application of ecosystem management will be on both Federal and non-Federal lands.

The term ecosystem management is not mentioned anywhere in HR 1164. It would be a mistake to construe that this bill and a ban on clearcutting and even-age management have anything remotely to do with ecosystem management.

A key concern of NASF, as with HR 1164, is the influence federal policies for ecosystem management and policies will have on state and private forestry policies and practices.

Reductions in harvesting on national forests have been significant and are predicted to decline in the future. We expect a direct result of this will be greater pressures on private forest lands to meet the nation's demands for timber products. This will have a direct bearing on private lands and their management. With these additional pressures on private forest lands to provide forest products, stewardship practices and management on private lands is essential. NASF's membership continue to pledge total commitment to carrying out their responsibilities at the state level.

We encourage this subcommittee to continue examining management practices on public and private forest lands. Resource managers are professionals and need to be guided by what is technically and scientifically sound and by public input at the most local level. Good forestry in this country depends upon sound policies at the Federal level, and strong support of good forestry on State and Private lands is essential.

**WRITTEN STATEMENT FOR THE RECORD OF
WAYNE E. BRANDT
Executive Vice President,
Minnesota Forest Industries and Timber Producers Association
Duluth, Minnesota**

I. Introduction.

My name is Wayne Brandt and I am Executive Vice President for the Minnesota Forest Industries and the Minnesota Timber Producers Association in Duluth, Minnesota. Minnesota Forest Industries association represents primary forest products manufacturing companies, while the Timber Producers Association represents independent loggers and small sawmills. Our two associations, with statewide membership, provide representation on both state and federal issues. Many of our members are dependent on the Minnesota national forests for all or part of their timber supply. Accordingly, much of our associations' work deals with the management of the Chippewa and Superior National Forests.

My testimony today is presented on behalf of the American Forest & Paper Association (AFPA). AFPA membership includes 365 member companies engaged in timber growing and production, solid wood products manufacturing, and pulp and paper manufacturing. Many AFPA members purchase federal timber as part or all of their raw material supply. AFPA represents an additional 50 regional and allied groups including our Minnesota associations. I appreciate the opportunity to testify on Representative Bryant's Forest Biodiversity and Clearcutting Prohibition Act of 1993.

II. **The result of HR 1164 is to sweep timber production and forest management off the national forests. We oppose HR 1164.**

HR 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993, comes with the veneer of a thoughtful proposal to improve the ecologic health of the national forests and federal lands. However, the provisions in the bill are so onerous that little or no timber management would remain on the national forests after its enactment. If passed into law this Act will create havoc for resource managers in the forests of northern Minnesota and the Lake States.

The bill prohibits many of the professionally-accepted forest management techniques, and places extreme limitations on the remaining tools. The bill embraces politically correct single-tree uneven-age management techniques for all circumstances, even where it may be the least effective remedy for a management problem. Unfortunately, the bill provides no recognition of local ecosystem needs, conditions, and histories.

HR 1164 would place unroaded RARE II areas off-limits to logging. This prohibition may not provide the best management to control insects, forest diseases, or management of forest fuels. In its zeal to preserve national forest land in a new category of wilderness, HR 1164 may destroy the very ecosystems it hopes to preserve.

Mr. Chairman, the Forest Service, forest user groups, other governmental bodies, and citizens have all worked to develop new land management plans for the national forests. Development of these plans has been contentious and difficult. However, the citizen suit provisions in HR 1164, will add a chilling effect on Forest Service management efforts and further polarize the debate over use of our national forests.

The national forests play a major role in meeting America's fiber needs. Historically, the national forests provided about one-quarter of the timber domestically manufactured into softwood lumber. However, the national forests contain 47 percent of all the standing softwood sawtimber inventory in this country. With each successive wilderness preservation or reservation for wildlife species and biologic diversity, access to our domestic timber supplies is reduced. We must work to assure the biologic diversity of our national forests. However, we must assure that the federal lands provide their share of timber to meet America's demands.

The alternative to using our own national forests to meet our timber needs is to import our supplies from foreign sources. Using imports we export our environmental responsibility to countries with forest management laws more lax than our own stringent standards.

For all of these reasons, Minnesota Forest Industries and Timber Producers must completely oppose HR 1164.

III. **Even-age management provides a Critical Tool for Restoration of Endangered Species In Minnesota.**

Even-age management, including clearcutting, is a major tool for restoration of endangered species on the Lake States national forests. These species include the gray wolf, the Kirtland's warbler, and several neotropical migratory songbirds. Unfortunately, HR 1164 would prohibit the very tools foresters and wildlife professionals employ to maintain and enhance these species.

Clearcutting in the Minnesota national forests provides enhanced habitat for moose, deer and the small rodents which are prey for the endangered gray wolf. The

Superior National Forest Plan points out the need for areas of larger disturbance to insure habitat for moose. Through larger numbers of prey, wolf populations have a greater chance of sustaining and increasing.

Recovery of the Kirtland's warbler depends on natural fire, or the combination of clearcutting followed by prescribed fire. Kirtland's warblers require a habitat of young jack pine 6 to 18 feet tall for nesting habitat. Only through continued disturbances can the proper habitat be created.

Clearcutting and other even-age management techniques are important in maintaining the diverse habitat requirements of Neotropical Migratory Birds (NTMB). These birds summer in North America, but winter in Central American and the Caribbean. While many of these birds require interior forest habitat, many other species depend on the edge effect generated from disturbed areas in the forest canopy. In an even-age managed stand after harvesting, an herbaceous growth stage is followed by woody, shrub growth, which results in a dense sapling stand. This type of regeneration provides distinctive forage and shelter for NTMBs. These conditions are unavailable in stands managed under uneven-age techniques.

No one type of site, silvicultural practice, or habitat structure can provide all the needs of the NTMBs. A variety of management techniques are needed to maintain habitat. Even-age management, including clearcutting are valuable tools in maintaining habitat. If clearcutting on federal land is abolished, as called for under HR 1164, one valuable tool in preserving NTMB habitat will be lost.

IV. The Northern Minnesota National Forests Thrive on Disturbance. Wildfire exclusion has halted much of the natural disturbance and human efforts will be required to restore and insure the diversity of the forests.

The current forest plan provides a clear summary of the ecologic situation on the Superior National Forest. Forest and ecosystem disturbances drive the development and maintenance of biologic diversity in the Minnesota national forests. Every acre on the Superior National Forest has burned at least once since the year 1600. On drier, upland ridges which burned frequently, forest stands regenerated to intolerant jack pine, black spruce and aspen-paper birch stands. On moister sites, white and red pine, white spruce, northern white cedar, black ash and American elm regenerated. The forest was a changing mosaic of forest stands of different sizes, ages and species.

Following heavy harvesting in the late 1800's, effective wildfire suppression and reduced timber harvesting have resulted in a change in stand composition. Without fire, the mosaic of forest types is evolving into late successional forest types. This change is resulting in a declining quality of wildlife habitat and declining plant and animal diversity. With less disturbance, young hardwood stands preferable to a variety of wildlife are declining. Deer, hare, vole, bobcat, lynx, buteo hawks, ruffed grouse and goshawk are all adversely affected.

Without increased disturbances in the Minnesota National Forests, these declining trends in habitat and diversity will continue. Increased burning could provide some remedy, but only with increased air pollution. Even-age timber harvesting with regeneration to aspen and other hardwood pioneers provides an economically beneficial alternative to wild or prescribed fire.

The underlying philosophy of HR 1164 places primary forest management emphasis on maintaining and enhancing biologic diversity on federal lands. The bill would select natural processes without human interference to repair broken and damaged ecosystem. A return to "native" diversity through cessation of timber harvesting as described in HR 1164 is impossible without severe damage to the Minnesota national forests. Historic human interference has changed the forest stands to the degree that restoration will require active adjustments to stand structure and composition. Even-age forest management techniques may provide the most effective means to restore diversity to these forests.

The Minnesota national forests do not exist in isolation. Humans use and depend on the forests for a myriad of purposes. Idealistically removing human influences from the national forests will not insure restoration of diversity to some arbitrary, pre-Columbian state. As noted in the Keystone Policy Dialogue on Biologic Diversity, "Humans for better or worse are part of the global ecosystem and their presence and influence in all likelihood will increase rather than diminish in the future. Humans must be part of the solution."

V. Species composition in Minnesota's forests.

The recently-completed Generic Environmental Impact Statement on Timber Harvesting in Minnesota is an interdisciplinary forest resource assessment which projects

¹. Final Consensus Report of the Keystone Policy Dialogue on Biological Diversity on Federal Lands. 1991. The Keystone Center, Keystone Colorado. p.12.

out timber harvesting and management for the next 50 years. This \$1 million study extensively analyzed future composition trends for Minnesota's forests. In this analysis, the primary silvicultural tool of choice was clearcutting and variations thereof. This study concludes that there will be no loss in diversity of tree species composition in Minnesota as a result of these silvicultural tools. This conclusion is further supported by analyses that have been performed on the composition of Minnesota's aspen cover types by the Minnesota Department of Natural Resources.

VI. **In many situations, even-age management techniques provide the least-cost alternative to achieve resource goals.**

Maintaining Minnesota's forest diversity requires a long-term investment. The effective application of timber management as a tool to accomplish this maintenance will help to defray the costs of investments in ecologic and forest health. While all forest management techniques, both even-and uneven-age must be available to resource managers, even-age techniques in general incur less cost. Preparation, administration and logging of even-age timber sales is less costly, and timber revenues to the government are generally higher with even-age techniques. These efficiencies may provide the financial difference which allows a restoration project to proceed in an era of tight budgets.

VII. **Current statutes and regulations provide a strong framework for enhancement of biologic diversity on the National Forests.**

Current Forest Service statutes and regulations already provide a sufficient framework for protection and enhancement of biologic diversity on the national forests.

The National Forest Management Act (NFMA), the National Environmental Policy Act (NEPA), and the Endangered Species Act (ESA) together provide detailed guidance on forest planning, silvicultural practices, and protection of biologic diversity. Additional statutes, including HR 1164, will only confound efforts to enhance diversity on the national forests.

The forest planning regulations stemming from NFMA provide direction to the agency to consider diversity. The regulations also provide extensive opportunities for issue scoping and public involvement which can create an even greater emphasis on biologic diversity in the planning process. The planning process already develops and reports on ecologic trends and conditions on each national forest, and through development of plan alternatives considers approaches to improving forest diversity and ecosystem health. Monitoring of activities and forest conditions is already an integral part of the planning and public reporting processes.

Additionally, the agency is currently in the process of upgrading and implementing a new computer based geographic information system for each national forest. This technology will provide a key tool for integration of biologic diversity needs into future forest plans.

In addition to the forest planning process, the Forest Service is making a major shift to embrace ecosystem management. Increased funding for ecosystem research for the Forest Service research branch will provide critical knowledge to national forest managers attempting to apply ecosystem management strategies. Not only has the focus of the agency staff shifted toward an ecosystem framework, but budget and

organizational changes within the national forest system are pending. Combined together, the depth and scope of these changes reinforce our view that additional legislation is not needed, and would only confuse and slow on-going efforts.

VIII. Conclusion.

Because of its extreme nature, the Minnesota Forest Industries and Timber Producers cannot support HR 1164. Even-age forest management techniques provide a critical tool to insure the development of needed wildlife habitat, the enhancement of biologic diversity, and the production of timber products. A number of threatened or endangered species living on the Minnesota national forests depend on even-age harvesting to enhance their populations.

Natural and human caused disturbances have always been a part of the Minnesota forests. With control of fire as a major disturbance in these forests, humans must employ other environmentally sound methods. Humans are an integral part of the forest ecosystem, and improvement of diversity on these forests will require careful human intervention and even-age techniques.



Sierra Pacific Industries

Timber Division • P.O. Box 496014 • Redding, CA 96048-6014 • (916) 385-3721

WRITTEN STATEMENT OF TOM NELSON, Sierra Pacific Industries Redding, CA.

I. Introduction.

My name is Tom Nelson. I am a District Resource Manager for Sierra Pacific Industries, a privately-owned, family-operated forest products company that employs approximately 2,500 people throughout the State of California. Our company operates nine sawmills; three molding, millwork and window manufacturing plants; and six cogeneration plants. We own and manage approximately 1.1 million acres of timberland. We are the largest purchaser of federal timber in California and have historically relied on this supply to meet 35 to 50 percent of our annual log requirements.

In addition to representing Sierra-Pacific Industries, I am here today to testify on behalf of the California Forestry Association and the American Forest & Paper Association. Both of these associations have members that are partially or wholly dependent on federal timber for their economic well-being. I appreciate the opportunity to testify on forest practices and on Representative Bryant's Forest Biodiversity and Clearcutting Act of 1993 (H.R. 1164).

My testimony today will address four points: (1) Sierra Pacific uses even-aged practices in an integrated program of resource management; (2) even-aged management provides an effective alternative to natural disturbance processes; (3) current Forest Service policy adequately controls the use of clearcutting; and (4) The Forest Biodiversity and Clearcutting Act of 1993 is a thinly disguised attempt to eliminate timber harvesting on Federal forest lands.

II. Sierra Pacific Industries uses clearcutting and other even-age techniques to accomplish a variety of resource goals.

Sierra Pacific Industries uses even-age forest management as a component in a careful program to assist recovery of the Northern Spotted Owl. Since 1990, our timberlands have been operating under the guidelines of a U.S. Fish and Wildlife Service-approved Northern Spotted Owl management plan. While limiting the extent of clearcutting on our property, the plan requires that we use a variety of silvicultural systems -- including clearcuts and other even-age methods -- to insure that we can provide the necessary types of habitat for the owl on a sustained basis.

A large portion of our private timberlands with Northern Spotted Owls were originally acquired through the development of railroads in the last century -- hence, they are "checkerboarded" -- with every other section owned by the Forest Service. Ecologically, our lands are very similar to adjacent Forest Service holdings. Elimination of even-age techniques, as called for in HR 1164, will leave the agency without the critical tools to insure survival of the owl.

Sierra Pacific Industries timberlands provide habitat for over 400 different species of wildlife on its timberlands. While most of the public concern has focused on those species most often associated with larger and/or older trees as a component of their habitat, the majority of those 400 species require early successional vegetation. In California, that habitat can only be provided by wildfire or even-age silviculture. We prefer to use even-age silviculture and mitigate the potential environmental damage rather than suffer the adverse environmental consequences brought on by massive, searing, intense forest fires.

Through our even-age management activities, we have created large clearings which provide increased forage for large mammals such as deer and elk. Such forest management practices have increased elk herds in the coastal range of Oregon and deer populations throughout the Pacific Northwest and the Sierra Nevada Mountains. The now-famous Forest Service handbook Wildlife Habitat in Managed Forests in the Blue Mountains of Oregon and Washington, for which Jack Ward Thomas was the principal wildlife biologist and technical editor, states "[d]eer and elk have been reported to use man made openings in the forest more than natural openings. Information in the Blue Mountains Indicates that elk readily use clearcuts...."

California's forest lands cover a wide range of topography, soil types, climate and ecosystems. The California forests range from low elevation coastal redwood to high elevation red fir. With this wide variety of forest conditions, we need as much flexibility as possible to develop sound silvicultural systems -- including both even-age and uneven-aged methods.

With this variation in mind, I have concerns with the limitations in HR 1164 placed on the uneven-age group selection management technique. Sierra Pacific Industries manages thousands of acres of mixed conifer forests. These forests of Ponderosa Pine, sugar pine, white and red fir, Douglas-fir, and Incense-cedar often respond well to uneven-age management regimes. In these forests, white fir regenerates well under the canopy of older pine, fir and incense-cedar trees. To maintain the mixed-species character, enough trees must be cut to allow sunlight to reach the forest floor where the pine will regenerate. Without openings of sufficient size -- often the size of small clearcuts

¹. Thomas, J.W. et.al., *Wildlife Habitats in Managed Forests -- the Blue Mountains of Oregon and Washington*. 1979. Agricultural Handbook No. S53. USDA Forest Service. p.116.

-- pine will not regenerate. Without young pine, these stands will evolve heavily to true fir creating an unnatural mix of species and an ecological disaster similar to the one we face in Eastern Oregon, Washington and the Sierra Nevada Mountains of California. The dense stands with closed canopies inhibit establishment of ground vegetation. This missing vegetation provides essential forage for small mammals that are the prey base for species such as the California spotted owl. Furthermore, these stands are subject to an abnormally high degree of mortality during periods of drought, such as that recently experienced in California. The ultimate result is a large build up of fuels that are likely to result in catastrophic fires.

Paragraph (2) of the FINDINGS in HR 1164 alleges that "even-aged logging causes a substantial reduction in native biodiversity." To the contrary, this bill, would eliminate several of the most important tools for achieving diversity management objectives. Even-aged management including shelterwood, seed cut, and salvage logging, will allow accomplishment of diversity, **not just timber harvest objectives.**

As Malcolm L. Hunter, Jr., formally an associate professor with the Wildlife Department at the School of Forestry, University of Maine concluded, "There is nothing inherent in silvicultural techniques or systems that will either automatically augment or deplete the biological diversity of a stand."²

At a time when the Forest Service and the Bureau of Land Management are pursuing a new era of natural resource management, under a policy for ecosystem management Congress must not take proven resource management tools away from professional managers. Rather, we should provide managers with the necessary

². Hunter Jr., L. *Wildlife, Forests, and Forestry – Principles of Managing Forests for Biological Diversity*. 1990. Prentice-Hall.

direction and policy, and then allow them the flexibility to utilize the appropriate tool to meet those objectives.

III. **Forest stand disturbances drive the evolution of the California forests. Even-age management provides an effective alternative to these natural processes.**

One need only travel inland by air from the coast to the Sierra Mountains, to realize the variety of the California ecosystems. For example the coastal redwood and Douglas-fir forests found in the northwestern corner of the state exhibit a uniformity within undisturbed stands. This uniformity of species, age and size reflects the "even-age" establishment of shade intolerant species. Natural forces such as fire and wind storms historically provided the large openings. With the silvicultural tools loosely labeled as "even-aged management" under this bill, forest managers have the ability to mimic natural processes and to establish stands similar to those previously created by nature over time.

In revising policy on clearcutting and even-age management, Forest Service Chief Robertson³ called for reductions in clearcutting on the national forests, and provided standards for its use. Guideline 4 of Attachment 1 of this direction relates to ecological processes. The Chief stated that resource managers must "employ the ecological capabilities and processes of the land. Work within the ecological potential of sites and landscapes, maintain native diversity, and employ nature's processes to the greatest degree possible."

In the mixed-conifer forests of the Sierra Nevada, John Muir described the forests he found in 1894 as having, "[t]he inviting openness of the Sierra woods [as] one of their

³. Robertson, F.D., Letter to Regional Foresters, Ecosystem Management of the National Forests and Grasslands, June 4, 1992.

most distinguishing characteristics. The trees of all species stand more or less in groves, or in small irregular groups..." Doctors Thomas M. Bonnicksen (Texas A & M) and Edward C. Stone (University of California-Berkeley) concluded in their studies on the forests of the Sierras, "fires and other disturbances maintained the mosaic structure and dynamic character of ancient mixed-conifer forests. Aggregations continually changed in relation to each other in both space and time as trees grew older and were replaced by younger trees."⁴

Doctors Stone and Bonnicksen explain, each area of the mosaic was occupied by trees that are all of the same age, though the age of the trees vary from area to area. As forest managers we can mimic these stand structures of the Sierran Province through the tools that H.R. 1164 seeks to eliminate. We can create openings across the landscape of varying sizes that will allow the establishment of a new generation of seedlings, as well as diverse vegetation that would otherwise be suppressed by a closed canopy. With the tools of clearcutting, shelterwood and seed tree cuts we can satisfy the Forest Service Guideline for Ecosystem Management and "employ ecological capabilities and processes of the land."

IV. Current Forest Service policy adequately restricts the use of clearcutting while assuring that management objectives are met.

Chief Robertson stated in his June 1992 letter that, as his agency moves forward in adopting ecosystem management, the agency "must accelerate the reduction in clearcutting as a standard commercial timber harvest practice on the national Forests.

⁴. Bonnicksen, T., In Dynamic Sierra: An Ecological Perspective Conference on the Sierra Economy: Sustainable Development in Harmony with Nature, Sacramento, June 16-17, 1993.

In making future management decisions, clearcutting is to be used only where it is essential to meet specific forest plan objectives."

I would like to reflect what Mr. Collins pointed out in his testimony. The Forest Service is using a great deal less clearcutting today than five years ago. In the California region in 1987, the agency harvested 18,500 acres using clearcutting. By 1992, that number had fallen to 9,800 acres. This downward trend will continue. However, as my examples have pointed out, the agency must retain access to clearcutting as a tool to accomplish a variety of forest and ecosystem management objectives.

Forestry in California faces a tangled web of federal statutes and regulations. HR 1164 will not help us out of our current quagmire with the Northern Spotted Owl. Congressional encouragement in the annual Interior Appropriations bill and Administrative directives have effectively reduced the use of clearcutting. However, eliminating a needed tool with another law will not improve management of our national forests.

V. HR 1164 is a thinly disguised attack to eliminate timber harvesting on federal lands.

HR 1164 represents nothing less than the total elimination of forestry on federal lands. It eliminates the scientific approach to resource management and replaces it with a political agenda. If passed, H.R. 1164 would result in the destruction of our forests in California as fires, insects and disease ravage the federal forest lands and threaten adjacent non-federal lands.

The South Lake Tahoe Basin and the adjacent portion of the Toiyabe National Forest provide a clear example. Here, timber harvesting was held to marginal levels, and

wildfires were quickly extinguished to insure scenic values and recreation opportunities. Today, this approach is recognized by the public as severely misguided. Insects and disease infest these forests, and residents have reconsidered, and even welcomed, logging to prevent wildfire and to salvage dead timber. HR 1164 implies a return to "native diversity" and requires hands-off management. Such neglect of the federal forests will foster a situation in which natural catastrophes, beginning on federal lands, will spill over onto adjacent privately-held lands.

New to the Bryant bill this year is a prohibition to entry of RARE II roadless areas. As a national level policy this is also a simple tool to eliminate timber harvesting from federal lands. This blanket prohibition again overlooks the local conditions on individual national forests. Forest health problems, watershed impacts, and demand for forest products may make entry into a RARE II area the most environmentally acceptable path for management of a national forest. The question of whether to enter a roadless area, and the similar question of how to maintain diversity and unique resources on the national forests are local or regional landscape questions that are best left to the forest planning process with its extensive public involvement, analysis of alternatives, and appeal opportunities.

Even though members of the environmental community and the forest products industry disagree on many issues, we agree with the Southeastern Section Wildlife Society resolution⁵ that "both even-aged and uneven-aged forest management [are] legitimate and important habitat management tools." The even-age management tools that Representative Bryant seeks to eliminate are essential to assure that we can provide

⁵. Resolution on Forest Management. Southeastern Section of the Wildlife Society. 1991

sufficient habitat and biodiversity, while providing the variety of forest products that the American consumer has come to expect.

VI. Conclusion.

The forest products industry is opposed completely to H. R. 1164. This bill will change the entire premise of federal forest management. The forest health and productivity of the National Forests will be adversely affected. The objectives we all seek to accomplish under the agency's evolving "Ecosystem Management" approach will be hindered seriously. As we enter a new era of resource management, Congress must not stymie our professional resource managers. Instead provide them with all the tools available so they will have the ability to accomplish well-balanced and scientifically sound management.

Thank you for the opportunity to appear before you. I am available to respond to any questions you have.

Westvaco

WRITTEN STATEMENT FOR THE RECORD
OF
D.J. (JOE) COLLINS
ENVIRONMENTAL AND TECHNICAL SERVICES MANAGER
FOR
WESTVACO CORPORATION
SUMMERVILLE, SOUTH CAROLINA

I. Introduction.

Mr. Chairman, I am Joe Collins with Westvaco Corporation's Timberlands Division in Summerville, South Carolina. I appreciate the opportunity to present testimony today.

I grew up on the edge of the Monongahela National Forest in West Virginia and received my forestry education at Duke University. I worked on National Forests and managed woodlands for Westvaco in South Carolina, West Virginia, and Virginia before becoming part of my company's forest research and technology development organization. I now manage our regulatory compliance on 1.4 million acres of company lands and 1.3 million additional acres in our landowner assistance program for neighbors in ten states. I have 32 years of experience with forestry and the evolution of forest practices and public attitudes toward forestry on private and public lands.

Westvaco Corporation is a major manufacturer of pulp and paper products. The corporation operates paper manufacturing facilities in Virginia, Kentucky, Maryland and South Carolina. In addition to obtaining substantial wood fiber from our own lands near these mills, Westvaco purchases timber from the George Washington, Monongahela, and Shawnee National Forests, and the Francis Marion national forest in South Carolina. We also rely on wood and bark residues generated by small sawmills who purchase from these national forests.

Westvaco Corporation has received a number of major environmental and wildlife management awards for creative and sensitive management of its timberlands and forest resources. Most recently, in late June of this year, the U.S. Fish and Wildlife Service honored Westvaco with the prestigious National Wetlands Conservation Award. I hope to describe to the Subcommittee the philosophy and some of the projects which have allowed us at Westvaco to both enhance wildlife habitat and to produce commercial timber.

My testimony today is presented on behalf of the American Forest and Paper Association (AFPA). AFPA represents over 450 timberland owners, forest products manufacturers, and purchasers of national forest timber.

II. **Westvaco and AFPA adamantly oppose HR 1164. The bill is poor legislation and poor science.**

Westvaco and AFPA oppose HR 1164 because it is poor legislation and poor science. The blanket elimination of even-age management techniques on all national forests and federal lands in the country under all circumstances does not make sense biologically or economically. It discards in one stroke of the pen the results of decades of research by the Forest Service and universities funded by Federal money. HR 1164 attempts to be politically correct, not economically, ecologically, or scientifically correct in many cases. The bill fails to recognize the unique local conditions and site requirements necessary to perpetuate many species valued by society for production of wood products and wildlife habitat.

While the bill claims to enhance biodiversity, it eliminates a scientifically valid

and environmentally responsible forest management technique necessary, with proper use, to enhance the health and productivity of this nation's public forests. Many tree species of economic importance to this country can only be produced by utilizing even-age management techniques. Some of the most successful wildlife management efforts in this country also have relied on even-age forest management. To arbitrarily eliminate clearcutting and other even-aged practices as an acceptable forest management practice on the national forests would result in significant loss of productivity in both timber and wildlife habitat and would subject forests, both public and private, to unacceptable risks from wildfire and diseases.

Unfortunately, the features of HR 1164 step beyond an attempt to improve management of the national forests. For example, the bill calls for establishment of a committee of scientists to provide advice to the Secretary of Agriculture. Membership on the committee is so limited that it will exclude an entire class of experienced professionals. These professionals could provide the creative solutions to the diversity questions. Yet, because their views are not politically correct, their abilities, experiences, and creativity will be completely excluded from consideration.

III. **Westvaco Corporation employs even-age techniques in careful, coordinated forest management strategies to produce timber and wildlife habitat.**

Westvaco Corporation employs clearcutting and other even-age management techniques on our own lands and lands of our cooperative forest management partners when necessary to achieve our stewardship goals. We also utilize uneven-

age techniques in other situations, particularly in our highly productive Appalachian hardwood forests in West Virginia, and in the management of bottomland hardwoods in other locations. Even in these areas, clearcutting is a necessary option to regenerate low-quality stands to high-quality species, or to accomplish stand improvement or insect or disease control. To properly manage any forest, public or private, the forest manager must have all these techniques available.

In other conditions, even-age management is the only way to economically produce certain valuable tree species, Douglas-fir and southern pines being notable examples. Many of the highly valuable species on which we depend for the raw materials for the housing and construction industries in this country depend on economical production of species which can only be produced at the necessary levels by using intensive even-age management techniques. Failure to meet the raw material demands domestically will result in importing the material from other countries, and most of the world lags far behind the U.S. in the practice of environmentally sound forestry.

Even-age conditions also have been highly effective in promoting increases in the populations of many forest-dwelling wildlife species, including ruffed grouse, wild turkey, white tailed deer, elk and some species of neotropical migratory birds. Populations of many forest-dwelling game species are at historically high levels. In addition to developing these populations, Westvaco has joined in a consortium of other forest land owners to investigate biological communities and watershed activities on company timberlands.

IV. **Even-age forest management provides an indispensable tool for managing endangered species.**

Protection and enhancement of many threatened and endangered species also is highly compatible with even-age management. In the management of our company lands and those lands of our cooperative forest management partners, we have been very successful in protecting and increasing populations of the Southern Bald Eagle and the Red-cockaded Woodpecker in our Southern holdings.

We had eagle nests on some of our lands when we purchased them in the 1920's; we have eagle nests in increased numbers today, after harvesting and regenerating the forest two times. We have protected Red Cockaded Woodpecker colonies and Gopher Tortoise sites while managing the forest for successive crops of timber.

Even-age management techniques can be compatible with the protection of threatened and endangered species, and numerous examples exist across this country on both private and public lands. Management options must be kept open if we are to be successful in protecting and enhancing threatened and endangered species, while providing the other outputs the American public expects from the nation's forest lands.

Biodiversity in the landscape will best be obtained when land and resource managers have the option to utilize the most appropriate techniques to meet local situations. Arbitrarily eliminating biologically sound techniques from the manager's options will not best serve biodiversity objectives. Even-age management has been demonstrated to provide diversity of both tree and wildlife species when properly

applied. The combination of even-age and uneven-age techniques without doubt will result in the greatest diversity. To eliminate some of these techniques without a scientific basis is not good biology and is not good politics.

V. **Effective fire & pest management also requires use of even-age management techniques.**

Fire, insects and diseases have been -- and remain -- important factors in the development of Southern forests. These factors can be either managed or unmanaged, with vastly different results in the productivity of the forest. Due to our past success with fire control, insects and diseases will now affect large areas of forest land if left unmanaged. This will result in even age conditions, but without the possible benefits of timber and wildlife. Managed, with both even-age and uneven-age techniques, these same forests can be more productive and healthier, and provide significantly more economic and social benefits.

Clearcutting is also necessary to eliminate particularly susceptible stands of mature hardwood trees on the leading edge of the Gypsy Moth advances. Young, vigorous hardwood stands are much less susceptible to the Gypsy Moth.

Fire is also an important factor in Southern forests. Unmanaged fire will certainly create even-age stands, with the loss of much economic value if trees are not salvaged. If forests, particularly pine forests, are left unmanaged, we will establish conditions that will quickly result in catastrophic fire occurrences. In these and other instances where fire and/or diseases have devastated a timber stand, the only practical method to salvage the trees for economic values to ensure prompt regeneration is to harvest them by clearcutting.

- VI. The Forest Service has reassessed the application of clearcutting on the national forests. The number of acres clearcut annually has been greatly reduced over the last five years and new direction was issued last year to reinforce this trend.

The Forest Service, both across the South and nationally, has drastically reduced the acres harvested using clearcutting. A variety of incentives have propelled this decrease. The Interior Appropriations bills for the last several years have included language encouraging the Forest Service to reduce the acres harvested using clearcutting. The agency further codified this shift in a June 4, 1992 letter from Forest Service Chief Robertson to the Regional Foresters. The letter clarified the Forest Service's intent to move toward implementation of an ecosystem management framework for land management activities, and specifically identified seven conditions under which the agency may apply clearcutting. The Bureau of Land Management issued similar direction at the same time.

The percentage of clearcut acres as a percentage of the total acres harvested from the National Forests fell 17 percent between 1988 and 1992. Figures from 1993 will likely indicate a continuation of this trend. Moreover, with each review and update of a forest plan, the application of clearcutting and even-age management prescriptions will be reconsidered and where possible, reduced.

On the southern national forests the acres clearcut annually has fallen far more than the national average. In 1987, the region clearcut over 105,000 acres. By 1989 this level had fallen to just over 67,000 acres and by 1991, to 38,000 acres.

The Forest Service has reconsidered the application of even-age management and clearcutting on the national forests in a comprehensive manner. Each forest plan

revision in coming years will continue this review. The recently completed Ouachita and Nantahala/Pisgah forest plans have carefully addressed silvicultural practices and forest diversity. The other Southern Region national forests will begin revisions to their forest plans in the next two years and can be expected to address these concerns.

Even with the tremendous reduction in the use of clearcutting, the agency properly recognizes the technique as an indispensable tool. In an Oct. 20, 1992 letter to the Southern Timber Purchasers Council, Region 8 Regional Forester Jack Alcock recognized, "that clearcutting is and will remain a management tool necessary to meet the goals and objectives we establish for each National Forest." For all their positive attributes, uneven-age techniques and selection techniques will not meet all the needs of all forest situations. The examples I have previously cited on Westvaco Corporation lands provide an example and could easily apply to adjacent national forest lands.

VII. Legislation to promote diversity is unnecessary.

As noted, the trend within the Forest Service is to re-evaluate the application of clearcutting and even-age management on the national forests. Administratively the agency has begun a major change in silvicultural practices. Congressional encouragement has provided effective support. Additional legislation is unnecessary to ensure these trends continue. HR 1164 represents prescriptive legislation which will only confound ecosystem management efforts by professional managers.

VIII. **A number of myths surround the biodiversity and even-age/uneven-age management debates.**

The assertion that the selection system and uneven-age management is superior to other silvicultural systems under all conditions is an ancient myth. A classic silviculture text notes:

"Foresters have argued inconclusively for generations over the relative merits of even- and uneven-aged stands, often with the production of considerably more heat than light. Each category of stand and procedure involves so many variations that neither makes a well defined target that can be attacked or defended effectively."

Local conditions and the skill of the practitioner have far more influence over the successful management outcome than a debate over the merits of a particular silvicultural system. A poorly executed selection harvest may result in greater short and long-term damage to the forest environment than, careful application of an even-age technique.

Many of the blanket negative findings and definitions describing even-age management in HR 1164, could just as easily apply to poor practices using selection harvesting.

A. Myth #1 – Even-age management causes heavy soil erosion and nutrient loss.

Between 1941 and 1956, the Forest Service conducted extended studies of logging and road design on experimental forests in the Appalachian Mountains. These early studies concluded that "watershed damage had little to do with the poor

¹. Smith, D.M. The Practice of Silviculture, 1962, John Wiley & Sons, New York, page 498.

silviculture of exploitive logging, but was principally due to road design and methods used to remove logs from the woods.² Recognizing the challenge of successful forest road design and construction, research has continued on this same experimental forest over the last five decades to develop techniques to minimize the impacts of forest roads on the forest landscape.

As an uneven-age technique, selection management requires the continual maintenance of an extended forest road system. The continual maintenance on the larger system not only costs more, but also results in repeated road traffic over a larger forest area.

B. Myth #2 -- Even-age management causes a reduction in native diversity and interior forest wildlife.

"Native diversity" is a term with ambiguous definition. As defined in HR 1164 it refers to ecologic conditions without human interference. However, forest systems without prehistoric, or historic interference by humans may be impossible to find in many parts of the country. Forest fires set by Native Americans provided key disturbances to forests in many parts of the country.³ A return to "native" diversity would require a return to uncontrolled fire in our forests. Such an effort would severely challenge air pollution control efforts. Even-age forest management techniques may provide an acceptable alternative to insuring disturbance in forest stands.

². L.W. Swift, Jr. in Swank, W.T. and D.A. Crossley Jr., *Ecological Studies*, Vol. 66: Forest Hydrology and Ecology at Coweeta. 1988. Springer-Verlag. New York.

³. Williams, M., *Americans & Their Forests -- A Historical Geography*, 1989. Cambridge University Press. pages 43 to 48.

In addition, there is ample scientific and historic evidence that many forest types evolved in "natural" even-aged conditions. To eliminate the use of even-aged management would severely threaten the survival of many forest types in the United States.

C. Myth #3 -- Even-age management impairs recreation activities, hunting and fishing.

A large body of scientific literature speaks to the benefits of even-age management to wildlife, particularly game species.⁴ Game species such as deer, elk, grouse, and wild turkey benefit most from the forest openings which result from even-age management. These areas are also important for a number of Neotropical Migratory birds and other non-game species.

D. Myth #4 -- That deforestation for land conversion in the Amazon Basin is the same as forest management practices in the United States.

Land conversion activities in the Amazon Basin represent a complex situation of economic and social development, and forest conversion and resource use. In contrast to the land clearing common in the Amazon Basin, timber management in the United States includes reforestation following harvest. Moreover, the characteristics of the tree species and soils in the Amazon basin reflect different conditions from domestic forests.

The Amazon myth, however, raises interesting questions regarding worldwide

⁴. Hunter Jr., M.L. *Wildlife, Forests, and Forestry -- Principles of Managing for Biological Diversity*. 1990, Prentice Hall.

timber supplies. Worldwide demand for forest products is projected to increase by 50 percent by the year 2040. If U.S. forests with their strict environmental regulations, public review, and careful forest practices cannot provide timber and fiber, demand will tap other foreign supplies such as the Amazon basin, Siberia, Chile, and New Zealand. In fact, the current major reduction in domestic softwood timber supplies due to the Northern Spotted Owl injunctions has resulted in a record level of Canadian softwood lumber imports.

E. Myth #5 – Uneven-age management systems are more cost efficient.

Several factors challenge the myth that uneven-age including selection techniques are more cost efficient than other techniques. Uneven-age management techniques require greater skill and care in marking timber for harvest at a greater cost. Logging operations are more complicated, bring greater exposure to safety hazards, and require greater skill at higher cost and likely reduced timber revenues. As noted above, road maintenance costs also increase over other situations because of the need for repeated and continual entry over the entire forest to produce a steady flow of timber from all stands.

VIII. Regrettably, HR 1164 rests on misinterpretations of forest practices and science, ignorance of local forest conditions and an over-reliance on politically correct environmental desires.

In closing, HR 1164 is an extreme, even damaging proposal. It ignores local conditions and forest management goals, as well as ecologic disturbances and trends.

It will prohibit the very tools land managers must have to enhance diversity. I have described the validity and some successful examples of even-age forest management techniques. Clearcutting and other even-age methods have an important place in the forest management pallet. Already, the Forest Service has greatly reduced its use of clearcutting on the national forests while recognizing the need for this tool under certain limited conditions.

Given the shortcomings in the bill and our experience in forest practices, we at Westvaco Corporation must view HR 1164 as merely another extreme preservation tool to remover timber harvesting from the national forests. I urge the Committee to reject HR 1164.

Thank you for the opportunity to testify. I would be happy to answer any questions.



The Ruffed Grouse Society

DEDICATED TO IMPROVING THE ENVIRONMENT
FOR RUFFED GROUSE, WOODCOCK,
AND OTHER FOREST WILDLIFE

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STATEMENT OF DANIEL R. DESSECKER FOREST BIOLOGIST RUFFED GROUSE SOCIETY

Before the
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture
United States House of Representatives

Concerning:
Ecosystems Management on Public Lands, and
H.R. 1164 "Forest Biodiversity and Clearcutting
Prohibition Act of 1993"

28 October 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to comment on the future management direction of our nation's federally-owned forest lands. These comments are generated by my concerns regarding the substantial, negative impact that H.R. 1164 would have on the ability of natural resource professionals to employ an ecosystems approach in the management of our nation's forest communities.

Our nation's federally-owned forest lands encompass approximately 285 million acres (Darr 1989). Resource management on these lands is of critical importance to the people of the United States.

An ecosystems approach to forest management of federally-owned lands demands that all native forest communities be represented on the landscape. This may require drastic shifts from current land-use policy in certain locales. However, the maintenance of viable ecosystems necessitates that all appropriate means of forest stand manipulation, including clearcut harvests, be available to resource management professionals.

Forest ecosystems across the North American continent have evolved with, and adapted to periodic and oftentimes drastic disturbance (Allen 1962, Curtis 1971, DeGraaf 1993). Today, resource managers have two options if they are to ensure that these forest systems are managed in a manner consistent with natural ecosystem processes:

1. Reintroduce fire to the forest landscape.
2. Utilize mechanical means to remove existing vegetation.

The former is unlikely given current social and political constraints. The latter is called a timber sale.

The Ruffed Grouse Society understands only too well the negative connotation normally associated with timber sales and, specifically clearcut regeneration harvests. Clearcut harvests are often inappropriately portrayed as the rape or destruction of the forest. Purveyors of this wholly inappropriate characterization are either ignorant of the basic concepts of forest ecology, or choose to ignore the facts in their desire to promote a specific objective. Even-age management prescriptions, such as clearcut harvest operations, are essential to the regeneration of shade-intolerant forest stands in North America.

Shade-intolerant forest communities, those forests that require full sunlight for regeneration and development, owe their very existence to periodic disturbance. Historically, this disturbance was caused by wildfires that, in some instances, raged across vast portions of the forested landscape (Leyburn 1962, Komarek 1965 and 1974, Keel 1976, Aschmann 1978, Van Lear and Waldrop 1989). Since the initiation of fire detection and suppression measures in the early 1930's, man has, to a large degree, precluded this type of natural disturbance from reshaping our forests, particularly in the eastern United States. Today, carefully planned and implemented clearcut timber harvest operations best mimic the effects of past fires by creating a mosaic of forest stands of varying ages, yet on a much smaller scale than historic conflagrations.

Despite periodic man-made disturbance, today's hardwood forests are maturing at a dramatic rate. The following table illustrates this disturbing trend in states located throughout the Appalachians.

TRENDS IN FOREST LAND ACREAGE CLASSIFIED AS HARDWOOD
SEEDLING/SAPLING, (< 20 YEARS OLD).

<u>State</u>	<u>Trend</u>	<u>Interval</u>
Connecticut (Dickson and McAfee 1988c)	- 43%	1972 - 1985
Kentucky (Alerich 1990)	- 46%	1975 - 1988
Maine (Powell and Dickson 1984)	- 42%	1971 - 1982
Massachusetts (Dickson and McAfee 1988b)	- 68%	1972 - 1985
New Hampshire (Frieswyk and Malley 1985)	- 58%	1973 - 1983
Pennsylvania (Alerich 1993)	- 24%	1965 - 1989
Rhode Island (Dickson and McAfee 1988a)	- 80%	1972 - 1985
South Carolina (Tansey and Hutchins 1988)	- 24%	1978 - 1986
Tennessee (Birdsey 1983)	- 40%	1971 - 1980
Vermont (Frieswyk and Malley 1985)	- 28%	1973 - 1983
Virginia (Bechtold et al. 1987)	- 17%	1977 - 1986
West Virginia (DiGiovanni 1990)	- 61%	1975 - 1989

This rapid rate of decline of the seedling/sapling age class within the various hardwood forest types of the eastern United States is detrimental to the many species of forest wildlife that prefer dense, recently disturbed habitats. The ruffed grouse is one such species.

However, ruffed grouse are not alone in their preference for young, newly-regenerated habitats. Numerous species of songbirds breed almost exclusively in young forest stands. These species include numerous neotropical migrant landbirds that are at present experiencing significant population declines. The following table illustrates these trends.

POPULATION CHANGE SINCE 1980 FOR VARIOUS NEOTROPICAL
MIGRANT LANDBIRDS IN THE EASTERN UNITED STATES
(US Fish & Wildlife Service - Breeding Bird Survey Data)

<u>Species</u>	<u>Trend</u>
field sparrow	- 24%
mourning warbler	- 18%
brown thrasher	- 16%
rufous-sided towhee	- 16%
white-throated sparrow	- 15%
chestnut-sided warbler	- 12%

Evidence to support the importance of early-successional (young) forest habitats comes from research conducted in New Hampshire (Welsh and Healy 1993) and Missouri (Thompson et al. 1992). These studies documented the species composition of avifaunal communities within large, contiguous forested landscapes that exhibited a great variety of stand age classes due to extensive silvicultural treatment over time, including clearcutting, and other contiguous forest landscapes that were relatively homogeneous with regard to vegetation structure due to a lack of either natural or man-made disturbance.

As one would expect, the managed landscape supported species that required young forests, these species were not found on the unmanaged, homogeneous landscape. Yet, this disturbed landscape also supported densities similar to those encountered on the undisturbed landscape for those species of neotropical migrant landbirds commonly characterized as "forest interior species", those species that ostensibly require large blocks of unbroken, mature forest.

Clearly, the presence of early-successional habitats on a landscape that is predominantly forested does not automatically preclude the presence of species that require mature forests. Quite the contrary, a vegetative matrix comprised of both early- and late-successional forest stands increases both the local and regional diversity of breeding avifauna. The complete absence of either component, young or mature stands, will negatively impact local and regional biodiversity.

We can't, as some have suggested, expect that these important, early-successional habitats will be produced on privately-owned forest lands. Nonindustrial private forest landowners are, as a general rule, far less apt to harvest forest products (Hodge 1991) and, thereby, set-back succession, than are public resource management agencies. Data from the Great Lakes area clearly show that shade intolerant forest types on nonindustrial private forest lands, those forest types that absolutely require clearcutting if they are to be regenerated in a manner consistent with ecosystem processes, are experiencing significant declines (Raile 1985). It is, therefore, imperative that our federally-owned forests be actively managed to promote the development of dense, young forest stands to ensure the continued viability of wildlife species that require these habitats.

The ephemeral nature of early-successional habitats necessitates the identification and implementation of a program of sound forest management, including clearcutting, that will ensure the appropriate spatial and temporal distribution of this important habitat component. The development of these habitats is a direct and a positive benefit of a timber management program designed with multi-disciplinary involvement.

On-the-ground management decisions must be prompted not by administrative "targets", but by a demonstrated resource need. Much of the current debate regarding "below-cost" timber sale programs on our National Forests stems from mandates that specific levels of harvest be attained by each Region, Forest and District, regardless of the cost to ecosystem integrity. A very vocal portion of the public is convinced that these mandated harvest levels are proof that resource management on our National Forests is driven far more by commodity production than by ecosystem enhancement.

This perception must be altered. The public must be confident that a timber sale is not an end unto itself, rather, it is a means to an end - that end being the management of critical ecosystem components through the manipulation of existing vegetation.

Public confidence could be engendered if the costs associated with the enhancement of non-timber resources, via a timber sale, were assigned to appropriate program budgets within the Forest Service, rather than the timber sale program budget as is currently the case. Wildlife habitat development should be charged to the wildlife program budget, the establishment of recreational access should be charged against the recreation program budget, and so on. This would allow for a more realistic appraisal of timber sale programs than is currently possible.

Obviously, appropriate program budgets would have to be increased to cover these costs. However, this would necessitate no net increase in Forest Service appropriations because these funds could simply be "reassigned" from what would become a greatly reduced budget for the timber sale program.

A balanced approach to the future of resource management on our nation's federally-owned forests demands that all biologically-sound silvicultural options, including clearcutting, be available for use by agency professionals, as they deem appropriate, to meet specific resource objectives. The elimination of even-aged silvicultural practices and, specifically clearcutting, as management options would eventually ensure that our federally-owned forests become nothing more than small, isolated fragments of young forest surrounded by a vast expanse of mature forest, a scenario equally as unacceptable as would be the converse.

The Ruffed Grouse Society is extremely concerned about the impact that the elimination of even-age management would have on ruffed grouse populations. However, in that the ruffed grouse is an excellent indicator of early-successional habitat conditions, these concerns are rightly extended to the well-being of local populations of numerous species of forest wildlife.

Despite it's intentions, H.R. 1164 would unquestionably lead to a reduction in the ability of resource managers to maintain important components of local and regional biodiversity. For this reason, the Ruffed Grouse Society is adamantly opposed to this ill-founded, broad-brush approach to forest resource management as the course along which our federal lands will navigate well into the 21st century.

(Attachment follows:)

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 Nov. 1, 1993

Honorable Charlie Rose:

It was 1969, when I first saw a clearcut in the state of Washington. When I recovered from the shock I thought there must be a better way. And there is.

H.B. 1164 seems to me a bill that takes care of a lot of our forest problems. It is a well thought out bill. I ~~strongly~~ strongly urge its passage.

Sincerely,

Jeanette K. Crawford

Honorable Charlie Rose:

Please work hard to see that H.B. 1164 is made into law as proposed. We must protect and save our forests.

Thanks,
 George W. Crawford

Affidavit Re:
Final Land and Resource Management Plan
National Forests and Grasslands - Texas

My name is Barry R. Flamm. I reside at 5903 Mount Eagle Drive, Alexandria, Virginia.

As way of background, I have extensive experience in natural resource and policy formulation -- national and international. I spent 26 years with the federal government in conservation work at all levels of the Forest Service; with the Agency for International Development, as senior staff for the President's Council on Environmental Quality; and as Director of the Office of Environmental Quality, USDA. Since leaving the federal government in 1981, I have consulted in environmental matters and intensively studied ecological processes here and in the tropics. I have many years of experience with all the major silvicultural systems and practices and have been directly responsible for national forest timber programs. I have degrees in forest management and public administration and am presently a Ph.D. candidate in ecology.

I have been chief forester for The Wilderness Society (TWS) for over two years where my role is to provide policy leadership at the national level and to provide forestry and ecological expertise to TWS. At The Wilderness Society, I have spent considerable effort bringing to the attention of the public and policy makers the serious problems involving the loss of biological diversity.

I personally consider the loss of biological diversity the most important environmental problem facing the planet. In this country we have a major opportunity to protect biological diversity through our public lands, especially national forests.

Unfortunately, Forest Service plans for the national forests in Texas will reduce their natural diversity. The Land and Resource Management Plan for these forests calls for even-age management on all the available commercial timber land. Sixty percent of this land will be clearcut. This practice will reduce diversity, causing loss of valuable biological and genetic resources and leaving these timber stands vulnerable to future insect and disease epidemics. Problems with the southern pine beetle (*Dendroctonus frontalis*), which are due in large measure to monoculture forestry and the failure to adopt sound ecological practices, clearly demonstrate that the forests themselves depend on diversity.

There are also sound economic and social arguments for diversity. For example, in an article entitled "The South" in the Journal of Forestry series on silviculture by S. G. Boyce,

(retired U.S. Forest Service employee), E. C. Burkardt and D. H. Van Lean (June 1986), the authors state, "Diversity is the key in the midst of changing markets, social attitudes and discount rates -- long term commitments to single products must be avoided. Forests will be best organized systematically to maintain both biological and product diversity." I concur with their conclusions.

I believe diversity can generally best be maintained through uneven-age management. I also believe that timber yield and profits can frequently be higher with uneven-age management. -- This is in part because selective cutting can leave those trees that are still rapidly growing while removing those individuals not contributing to yield. At worst, uneven-age and even-age forests should show similar long-term yields (Gingrich, 1987). Costs of artificial regeneration, thinning, weeding and insect control may also be reduced with the uneven-aged system.

Unquestionably, clearcutting has large impacts on the other uses and resources of the forest. It is a very questionable practice on public lands. A clearcut is the epitome of a "single use" excluding other uses for some time. Its impact extends well beyond the area affected. Clearcuts frequently can give visual impacts for miles. Frequently clearcuts and the accompanying roads pollute streams. It is my opinion -- and I believe it was the intention of the Congress in passing the National Forest Management Act -- that the use of clearcutting on the National Forests should be limited to exceptional cases.

I wish to briefly address three arguments frequently used by the Forest Service against the use of uneven-age management.

1. Selection cutting has more frequent entries, hence needs more roads.

Over the rotation life of a stand, there is probably little difference in most situations in the required road mileage between even- and uneven-age management. In my experience, selection cutting often occurs in approximately 20-year cutting cycles. Most even-age management calls for periodic entry for thinning, intermediate harvests, and other practices on which yield assumptions are based. In addition, on the Texas National Forests frequent entries for prescribed burning are planned. Thus, the total amount of activities requiring road access for even-age management may not be very different from the frequency of entry for selection cutting.

2. Selection is too complex for forest level timber regulation.

This is a lame excuse for professional foresters. Selection cutting was once widely practiced on the national forests. I have approximately ten years experience myself with the method. Running lines around clearcut blocks is no doubt

simpler, quicker, and cheaper than practicing selection methods. The uneven-age system requires intensive training in tree marking and regulation, but these tasks are well within the knowledge and skills of today's foresters. Moreover, today's foresters should be practicing ecological forestry based on current knowledge and research in forestry, entomology, conservation biology and related fields.

3. Selection does not provide the species richness of even-age management.

Appendix J of the Texas National Forest Plan erroneously claims that selection does not provide as much species richness as even-age systems do. While it is obvious that clearcutting will increase the amounts of early successional habitats -- thereby bringing in an assortment of species that would shun the forest interior -- it confuses diversity on a very local level with regional or global diversity. The species that will benefit from this timber practice will mostly be either generalist or early successional species that are already common. At the same time, clearcutting will diminish native diversity on a larger and more important scale. These stands harbor relatively uncommon interior forest-dependent species that will suffer from even-age management. I believe such emphasis on local as opposed to regional or global diversity is contrary to the intent of the NFMA.

In conclusion, it is my professional view that it is ecologically and economically unsound for the Texas National Forests to depend exclusively on even-age silvicultural systems. I believe clearcutting is rarely justified and cannot be considered the optimum method of timber cutting on the Texas National Forests.

Signed Barry R. Elum

State of DISTRICT OF COLUMBIA

County of N/A

Subscribes and sworn to on my presence before me a notary public this day of JULY 1 1987.

Jacqueline G. Zapala
Notary Public
My Commission Expires July 31, 1990.

Testimony of Sara Folger
 Inland Empire Public Lands Council
 PO Box 2174 Spokane, WA 99210
 509 327-1699

House Agriculture Committee
 Subcommittee on Specialty Crops and Natural Resources
 Charlie Rose, Chairman

Mr. Chairman, Distinguished Members

Thank you for inviting me to appear before this Subcommittee. Unfortunately, I was unable to attend, but I am submitting my written testimony instead.

My name is Sara Folger. I reside in northeastern Washington State and I am employed by the Forest Watch Program of the Inland Empire Public Lands Council, a conservation organization based in Spokane, Washington. The Forest Watch Program educates citizen owners of the National Forests in the natural functions of forested ecosystems, in forestry practices which affect them, and in participation in the NEPA process of public involvement in federal land management activities. My position requires that I review NEPA documentation from 29 ranger districts of nine national forests between the Cascade Mountains and the Continental Divide.

I hold no letters in the sciences. My knowledge is based in intensive training first as a volunteer and then as staff with the Forest Watch Program from 1989 to present. I routinely interact with government agencies, particularly the United States Forest Service. I intervene in land management projects when necessary, through the administrative appeals process, to protect non-commodity values of the public forests. I understand many of the principles of conservation biology, forest ecology, hydrology, and methods and effects of forestry practices.

The ecological degradation of our public forests is no news to anyone in this room. Much of that degradation has been brought about by excessive evenage logging methods in our forests.

As outlined in H.R. 1164, evenage logging diminishes the biological resiliency and future productivity of the forest. Definitions of evenage cutting methods are inconsistent, and methodologies vary between managers, districts, and forests. Evenage logging often produces many of the same effects as clearcutting. Evenage logging is generally viewed by the Forest Service as a cure for insect infestations and outbreaks of tree diseases, but many scientists and other observers agree that these biological events are caused more by the stresses of fire suppression and monocropping which accompany the same evenage cutting practices. Evenage logging methods reduce habitat for keystone species, create

excessive water runoff and sediment production in streams, diminish soil productivity, genetic diversity, and bring about a host of other problems.

Federal land managers, especially the Forest Service, have promised the public that they will move toward ecosystem-based analyses and management practices. I have scrutinized many new timber sale proposals issued since that promise was made, and while they may propose to log fewer acres, evenage cutting still dominates as the preferred technique. I see the negative biological effects of evenage logging every time I go into the forests east of the Cascades, and I firmly believe that to further this practice in any of its forms will only cause more damage.

Several decades ago, single-tree selection cutting was a preferred method of extracting timber. This type of logging, conducted carefully and with the future in mind, gives reasonable assurance of a long-term supply of high quality wood, maintains stand structure necessary to support the native organisms that exist there, protects the forest's resiliency and resistance to stochastic events, and can preserve the livelihoods of humans who engage in selection cutting. If a commitment to selection logging were made and adhered to, we could see a short term drop in volume accompanied by an employment dividend. This dividend would manifest itself through the labor-intensive nature of selection cutting and through projects designed to restore natural conditions in overcut areas. This would be an immensely favorable situation for the forests and for all the biological communities that depend on them.

In our Inland Northwest forests, historically rejuvenated by frequent, low-intensity fires, a move toward selection cutting could effectively deal with overstocking that we see in many stands dominated by lodgepole pine. Lodgepole pine is a relatively short-lived, relatively fast-growing tree that often regenerates first after fire. Lodgepole pine, while not considered a species of high commercial value, has tremendous value when viewed in terms of its function in the forest: a pioneer species which can grow in fairly adverse conditions, and thereby hold the soil in place, regulate water runoff, and quickly provide habitat for soil microorganisms, non-game species and the seeds of trees and other plants they help to distribute. However, lodgepole pine is being blamed as a food source for mountain pine beetles and other forest pests. Its tendency to regenerate in great profusion has become a liability. Foresters wishing to grow trees of higher commercial value on short rotations justify its eradication from many areas. Removing lodgepole pine from the ecosystem may make sense from a market standpoint, but the biological tradeoffs are not fully understood and may cost us dearly in the near future.

I have reviewed hundreds of timber sale proposals from the Forest Service. Rife with inconsistency between ranger districts and between forests, many of the conclusions drawn by the Forest Service are based upon flawed predictive models and subjective assumptions. Hard science, ground-verified data and common sense seem to have been subverted by an overwhelming directive to produce timber at any cost to forested ecosystems and their associated native species. If implemented, the bill under review by this Subcommittee could serve as a vehicle for consistent application of sustainable forestry practices and the protection of species richness and diversity by all the government agencies which use the public ownership for extractive purposes.

This Subcommittee has requested my commentary on the appropriate criteria, goals, implementation and application of ecosystem management on public lands. While I am not qualified to address many important components of ecosystem management, I do have some insight through my participation in Forest Watch and through the fact that I live in a forested ecosystem.

The National Forest Management Act of 1976 (NFMA) mandates that management activity be based upon sustainable forestry methods, maintenance of biological and genetic diversity, conservation of soil resources, water, viable populations of native wildlife - all to protect, preserve, and enhance the publicly-owned forested ecosystems in this Nation. This mandate clearly focuses on protection of native forests and associated species, yet here we are nearly 20 years past the enactment of NFMA without any idea of how to manage an ecosystem.

While I do not know exactly how to sustain forested ecosystems for the benefit of all species, I do have some idea of how to begin. We must begin by knowing where we stand. In my dealings with the Forest Service, it has become alarmingly clear that the agency has focused for so long on the extraction of commodities and secondary use by livestock, hunters, and recreationists, that basic scientific practice has gone by the wayside. Reliable maps, ground-verified inventories of existing conditions, assessments of non-game wildlife populations and habitat requirements, records of climatic fluctuations, and many other fundamental data are nonexistent. These data are basic tools for good management decisions, yet public land managers are bereft of these tools in far too many cases. Where even part of these records do exist, often they are in such differing formats the information cannot be merged without months of additional labor and expense. By the time the information is put together, conditions could change enough to render it useless.

Before the public can put its faith in the public lands agencies, those agencies will have to demonstrate that they can gather and interpret data objectively - with the future of ecosystems in mind before all other interests. These agencies will also need to prove to the public that they can monitor conditions of the

ecosystems and respond from a commitment to sustainability, and I refer to sustainability in terms other than the sustainable timber yield which has eluded us for so long.

The Forest Service has many new words and euphemistic terms to describe its vision of ecosystem management, but the agency does not have a clear direction or plan to truly protect, preserve, and enhance our forests. District rangers are still being evaluated on the number of board feet they extract from their districts. Wildlife biologists, hydrologists, botanists and ecologists in the National Forests are still pressured to understate the effects of logging and roadbuilding in NEPA documentation to facilitate the extraction of more timber. The US Fish and Wildlife Service, the environmental community and our judicial system are being blamed for employment loss through enforcement of the Endangered Species Act, the last resort available for protection of sensitive native species. How can the public owners of the National Forests and other federal lands believe for a moment that agencies which have caused severe degradation of our forests, our waters, our wildlife through decades of overuse be trusted to sustain the ecology of our lands?

October 25, 1993

Sara L. Folger

**FEDERAL FOREST REFORM
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November 4, 1993

Hon. Charlie Rose, Chair
Subcommittee on Specialty Crops and Natural Resources
Committee on Agriculture
1300 Longworth House Office Building
Washington, D.C. 20515

Re: H.R. 1164 Hearing, October 28, 1993

Dear Mr. Rose:

I was glad to meet you at the end of the hearing October 28, 1993, on H.R. 1164. For the record, the arguments of opponents to H.R. 1164 on October 28, 1993 were virtually all the same as in last year's hearing on H.R. 1969, Cong. John Bryant's similar bill. One opponent added an opinion concerning fire. They are unsound arguments, as follows.

1. Almost every opponent claimed that we need even-age logging in some circumstances, but almost nobody ventured to identify those circumstances, so that we could rebut them specifically.

2. Someone did identify aspen in the Lake States. In rebuttal we alert you to the written statement by Dr. Robert Zahner, veteran of the Forest Service, attached to Cong. John Bryant's statement, showing that University of Michigan demonstrations proved that selection management is better for aspen production economically and silviculturally, as well as environmentally.

3. Further as to aspen, Elizabeth Farrell showed a slide, taken by me on the Chequamegon National Forest where the Forest Service clearcut a conifer forest to grow an aspen monoculture.

4. As shown on June 16, 1992, before your predecessor subcommittee, I attached another statement by Dr. Zahner showing that aspen and all other forest types in the Eastern half of the continent could grow better under selection. It is in that record at p. 348.

5. The witness, Chadwick D. Oliver, criticized H.R. 1164 on the ground that it attempted to apply a uniform method to all regions. In rebuttal, selection management is flexible. It is applicable to all forest types and circumstances. See the statement of Dr. Robert Zahner, above, and Tim Foss, another forester, attached to Cong. John Bryant's statement of October 28, 1993. Mr. Foss says that selection is applicable to all forest types in the West.

6. As further evidence of the widespread application of selection, I attach hereto a list of selection stands under private ownership operating in all parts of the nation for as long as 150 years.

7. Dr. Oliver's statement contains a gross non sequitur. First, at page 2, he notes that old growth forests are not a steady state, but are subject to natural disturbances, sometimes reducing them to an early succession structure.

But Second, on p. 3, he argues that excluding natural disturbances or even-age logging, if applied nationally to private and public lands, would endanger species which depend on "disturbances." He was right about excluding natural disturbances. He was confused about including even-age logging. If we permit natural disturbances to continue, why should even-age logging be necessary?

Oliver's next sentence proves his fuzziness: "Similarly, excessive even-age harvesting while not allowing 'old-growth' structural features have endangered such species as the red-cockaded woodpecker and the ivory-billed woodpecker." (sic).

The word, "excessive", begs the question and the issue. The issue includes whether even-age logging is incompatible with the species and whether selection is compatible. In the issue conflict, the Endangered Species Act would prevail over H.R. 1164. As To Oliver's extant example, there is no conflict.

I am an attorney for one of the plaintiffs in Sierra Club, et al v. Espy, et al, in which District Judge Robert M. Parker entered a final injunction against the Forest Service to stop even-age logging in Red-cockaded woodpecker habitat, because he found that even-age logging diminished that habitat. Judge Parker permitted selection logging in a way that leaves an adequate compartment of old-growth pines, because that is compatible with the endangered species. Thus Oliver's example indicates the soundness of the Bryant bill.

8. Furthermore, as to Oliver, the mere fact that old growth forests are dynamic does not prove that even-age logging is necessary to increase the frequency of serial succession. If, in nature, a forest in Oliver's state of Washington would be disturbed substantially every 600 or 1500 years that is no justification for clearcutting it every 100 or 150 years. Yet that is the result that continued even-age logging would allow federal agencies to impose on our federal forests. Oliver completely overlooks this factor.

9. At p. 7, Oliver claims fuzzily:

"For example, a recent study under my direction shows that many more trees in the forest will need to be harvested than

the amount allowed in the bill to allow enough light for Douglas-fir to continue to be part of the forest in western Washington."

Oliver gives no citation, year, authorship, or data for that study. He fails to acknowledge any of the forests in western Washington and Oregon where single-tree selection management of Douglas-fir is succeeding. See list attached hereto, including his own state. He fails to acknowledge that H.R. 1164 also allows group selection with larger openings than single-tree selection. His approach is not scientific.

10. Oliver slips in at p. 8 another old myth of even-age apologists, that "More roads are actually needed in uneven-age management than in even-age management." He gives no evidence. In rebuttal, we attach the affidavit of Barry Flamm, forester, (now Dr. Flamm), with long years in the Forest Service. Dr. Flamm gave reasons, referring to the many entries into even-age stands to do pre-commercial thinning, commercial thinning, prescribed burns, insect and disease measures, and other functions in addition to end-of-rotation logging.

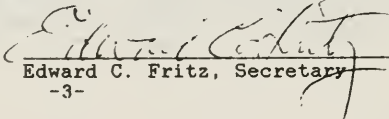
11. On p. 9, Oliver says, "It would be much more effective to legislate a goal such as maintaining the fluctuation balance of all structures across the landscape." In rebuttal, that is vaguer than the biodiversity provision in the National Forest Management Act which the Forest Service has evaded since 1976. Oliver simply ignores what happens in reality when you give the federal forestry agencies any discretion to fluctuate the ecosystems.

12. At the end, Oliver attaches a chart (C) Pre-1850 Western Washington Forests which indicates a far greater proportion of old-growth, and a smaller portion of early succession than currently (B) after all the even-age logging of the past century. Yet he never even advocates a reduction, much less a ban, on even-age logging.

13. Always looking for a scare tactic, an opposition spokesman this time raised the specter of fire. He offers no documentation or data that selection management causes a greater fire hazard than even-age stands of saplings or grown trees. Actually, by maintaining a moister microclimate, a selection stand is less susceptible than an even-age stand to any kind of fire at any stage of succession of even-age except shortly after site preparation and slash burning.

As elaborated upon in my book, Clearcutting: A Crime Against Nature, Eakin Press, 1989, even-agers cling to their myths. It is time that even-agers display some conformance to reality.

I also attach and incorporate the rebuttal of Dr. William B. Willers, dated October 29, 1993.


Edward C. Fritz, Secretary

WRITTEN STATEMENT ON H.R. 1164**Submitted by John A. Helms**

My name is John A. Helms and I am Professor of Forestry in the Department of Environmental Science, Policy, and Management in the College of Natural Resources, University of California at Berkeley. My field of specialization is silviculture and I have taught courses and carried out research in this subject in California for the past 30 years.

I am submitting this statement because of my life-long concern for sustaining the productivity of the nation's forests and my belief that H.R. 1164, although well-intentioned, is counter-productive. It does not appear to be based on scientific evidence, and will not produce the desired full range of diverse and healthy forests.

The basic, desirable aim of the Bill is to sustain diversity on public lands. To achieve this, the Bill concentrates on means rather than process, and, unfortunately, bases its arguments on attributes of even-aged logging in the context of exploitative behavior that cannot be supported by scientific evidence when applied to even-aged methods in the context of modern forest management. Furthermore, the proposed restrictions on timber harvesting are not oriented to accommodate issues of space and time in that they address the characteristics of stands rather than landscapes and do not recognize that vegetation grows and forest structure is dynamic.

There are four fundamental issues that contribute to sustaining desired forest diversity:

1) Ecological Conditions Required for Forest Growth

The way in which stand structure develops depends upon the relative growth of grass, shrubs, and trees. Each species has its own micro-climate requirements for satisfactory growth -- particularly sunlight and soil water. Consequently, diversity of vegetation types requires a diversity of ecological conditions that suit the growth requirements of particular forest plants.

2) Natural Disturbances in relation to Ecological Patterns

Natural occurrences of tree mortality, fire, insects, disease, wind, and flood create openings of sizes varying from individual trees to landscapes. These openings regenerate and, overall, provide landscapes with diverse patterns of horizontal and vertical stand structure. These patterns change over time as each unit within the mosaic grows from youth to maturity. Re-occurrence of natural disturbances recreate new opportunities for regeneration.

3) The Relation Between Silvicultural Methods and Diversity of Ecological Patterns

Even-aged silvicultural methods (clearcutting, seed tree, and shelterwood) and uneven-aged silvicultural methods (single tree selection and group selection) were designed to create microclimatic conditions through harvesting that simulate the array of conditions created by natural disturbance. Clearcutting, seed tree, and group selection provide exposed conditions suitable for regeneration and growth of sun-demanding plants, and shelterwood and single tree selection provide conditions in which shade-demanding plants are readily established. The size and shape of harvest unit, the extent to which each method of harvesting is used, and the length of time between sequential harvests determine the quality and diversity of ecological patterns on the landscape. The use of alternative silvicultural methods of harvesting can produce any desired distribution of structural types. In fact, by using variants of the classical silvicultural methods it is possible to create an infinite array of stand conditions.

4) Effects of Choice Among Silvicultural Systems

Choice among silvicultural methods enables a manager to create the kind and amount of diversity desired. In fact, to sustain the diversity of habitat and ecological patterns similar to that provided by natural means requires the opportunity to use an equivalent diverse array of harvesting methods. Limiting the range of methods available for use limits the range of plant species that can be grown and diversity of ecological patterns potentially available. Alternatively, over-use of one particular set of methods, either even- or uneven-aged, results in loss of diversity.

Clearcutting

Unfortunately, the term clearcutting is used in two ways. Firstly, it is used by the public to describe exploitative removal of all trees without regard for the consequences. Secondly, it is a term used by the profession of forestry to describe a practice that is designed to upgrade stand quality, to provide regeneration of desired species, and to create

desired diversity. Exploitative clearcutting, which was done to varying extent in the past, has no current place in the nation's forests. Also, the over-use or mis-application of any one method within a given watershed can have undesirable consequences. Even-aged methods, when prescribed professionally, are not inherently detrimental but like all even- and uneven-aged methods have advantages and disadvantages in relation to managerial, ecological, and societal criteria. The choice among silvicultural systems or their variants, therefore, requires professional expertise in ecological dynamics. Societal goals should be interpreted in terms of desired stand structure at the landscape level and professional foresters should be charged with the responsibility, and accountability, of using whatever silvicultural approaches are needed to create and sustain the values desired.

Selective Harvesting

Similar to even-aged systems, the names applied to uneven-aged systems have both exploitative and managerial connotations. In the past, selective cutting was a synonym for high-grading in which the best trees were cut without regard for the quality of the remaining stand. In a professional forestry sense, however, selective cutting is always prescribed to upgrade forest quality. Experience has shown that single tree selection tends to regenerate shade-demanding species which can change species composition of forests. The silviculturist recognizes this potential and, where desirable, prescribes group selection to create exposed conditions and micro-climates that enhance regeneration of sun-demanding species. The public, however, often has difficulty in distinguishing between group cuts in uneven-aged management and small clearcuts in even-aged management. Writing legislation and administering regulations designed to distinguish between the two and yet provide for desired ecological outcome will be difficult.

I submit, therefore, that it is undesirable to legislate method and that it is preferable to clearly state intent. The professional forester should be charged with the responsibility of prescribing a desired approach to stand and landscape management and should also carry the burden of being accountable for its success.

H.R. 1164

With respect, I submit that this Bill has the laudable objective of ensuring the health and long-term productivity of the nation's public forest lands, but it is based on common perceptions of exploitative clearcutting and not on attributes of clearcutting when used as a prescribed method of management. I wish to comment on ten cases in Section 2 of the Bill

where charges are made against even-aged logging that, in the context of even-aged management, are not based on sound forest science:

1) "Even-aged logging causes a substantial reduction in native biodiversity".

An even-aged stand may have less diversity than an uneven-aged stand, but a landscape is likely to be much more diverse if it contains even-aged components. Biodiversity is increased when forested landscapes have diversity in vegetation type and structure. This can be achieved through judicious application of all silvicultural systems -- including an appropriate proportion of exposed sites that enable the development of early-seral stage vegetation. Late-seral stage stand structures can be developed by both even- and uneven-aged approaches to management. Even-aged stands do not necessarily have higher relative density. And a basic characteristic of genetic tree improvement, contrary to breeding in agriculture, is to increase adaptability to diverse environments and to broaden the genetic base.

2) "Even-aged logging kills immobile species of wildlife and depletes habitat of deep-forest species".

All types of harvesting enhance the habitat for some species of wildlife and diminish it for others. One issue is the size of harvest unit relative to home range and the browsing, foraging or nesting requirements of the animals in question. Another is the proportion of a landscape that has early-, mid-, or late-seral-stage vegetation structure that is developing from a particular silvicultural treatment.

3) "Even-aged logging exposes the soil".

This is exactly why the method is chosen -- it provides microsite conditions that are necessary for establishment and growth of sun-demanding species. The charges that clearcutting causes erosion, loss of nutrients, and impoverishment of soil may be valid in exploitative clearcutting. They may also apply where clearcutting has been prescribed inappropriately on steep slopes and on lands of low site quality. However, when prescribed appropriately, clearcutting will not create the effects charged.

4) "Even-aged logging decreases the capability of the soil to retain carbon".

This tendency is true for clearcutting and seed tree harvesting but not for shelterwood. Given this knowledge, the professional forester can limit the size and frequency of clearcut areas.

- 5) "Even-aged logging renders the soil increasingly sensitive to acid deposition".

There is no reason why even-aged systems in particular should necessarily result in a decline in coarse woody debris or reduce water retention. This is a function of site preparation, the level of which is independent of the system used. Soil surface temperature is commonly increased but this can be an advantage where it leads to increased metabolism and development of seedling root systems below the surface layers.

- 6) "Even-aged logging results in increased stream sedimentation".

This can be true in exploitative logging of any kind. However, in the past 15 years, the use of buffer strips adjacent to streams in all silvicultural systems has tended to eliminate the potential for sedimentation. Also, the problem can be avoided by prescribing variants of the shelterwood method on those slopes that have a tendency for erosion.

- 7) "Even-aged logging increases harmful edge effects".

Edges can be created by both even- and uneven-aged systems. They have both desirable and undesirable attributes depending upon the issues involved.

- 8) "Even-aged logging decreases recreational diversity".

The characteristics of stands produced by alternative silvicultural systems depend upon their stage of development. Also, a critical issue is whether diversity is defined at the level of a stand or landscape. People tend to envision clearcutting as bare, exposed ground with no vegetation. Yet in California, 70-year-old redwood stands that have regenerated after clearcutting have been acquired for state parks because of their high aesthetic qualities.

- 9) "Reduction in biological diversity".

Diversity is reduced if the range of possible stand structures is reduced. A goal of increasing biodiversity is best attained by retaining all methods of harvesting for use where appropriate and desirable. The statement that even-aged logging leads to "relatively impenetrable thickets of saplings and then into monotonous plantations" is an atypical characterization. Stands of this type could certainly be produced if desired but there seems little reason to do so. The density and species composition associated

with even-aged systems can be controlled. For example, mixed-species planting has been common in California's Sierra Nevada for about 15 years. Varying levels of grass and shrubs within both even- and uneven-aged stands can be attained depending upon the structural diversity desired. Interestingly, a well-known example where nature created dense, even-aged stands of a single species is at Yellowstone National Park where wildfire destroyed large stands of lodgepole pine which are now regenerating rapidly. This indicates that stand management is necessary even in forest reserves.

- 10) The relative resilience of even- and uneven-aged stands to epidemics of insects and diseases is difficult to appraise. Ecologically, one may expect that mixed stands are more resilient than those of single species. However, nature provides examples of vast areas of single-species stands (in the west these include redwood, Douglas-fir, lodgepole pine, ponderosa pine, and true fir) as well as mixed-species stands (mixed Douglas-fir stands and the mixed-conifer type). The presence of both pure and mixed stands in nature indicates that, in the long run, both are successful in withstanding fire, insects, and disease. A related issue is the need to use clearcutting to regenerate mistletoe-infested stands. In this situation, clearcutting can be the only usable method to ensure the development of healthy new stands.

I believe that the findings written in the Bill leading to banning even-aged silvicultural methods are based on charges made against exploitative practices that do not have a place in professional forest management. In this context, most of the charges made cannot be supported by scientific evidence. Similar charges of exploitation and diminishing of diversity could be levied against non-professional use of selective cutting.

H.R. 1164 also contains definitions that either are at variance with professional use or will create problems with respect to implementation. Three of the more important are:

Restoring native biodiversity to the level that would have occurred in the absence of significant human impact is probably impossible given that human habitation and urbanization has disrupted the home range of wide-ranging animals such as wolves, bears, and mountain lions. In addition, the general view of "native biodiversity" typically excludes the role of large-scale natural disturbance.

Group selection is defined as having openings with a width no greater than the height of the tallest edge tree. With openings this small, the shade provided will make it difficult for the regeneration and satisfactory growth of sun-demanding tree species and is likely to lead to change in species composition.

Selection management is defined as being limited to natural regeneration. Because of natural periodicity of several years between seed crops, it is often desirable to plant seedlings of desired species in order to maintain mixed-species stands and to meet forest management goals as well as forest practice regulations for prompt regeneration.

During the last five years both private and public forest managers have been developing variants of even-aged and group selection methods that leave varying numbers of reserve trees in order to provide aesthetic, wildlife habitat, and landscape benefits. In addition, the recent move by the USDA Forest Service to reduce the amount of clearcutting and to adopt an ecosystem approach to forest management represents a positive change in policy aimed at sustaining diverse values on public lands.

Choice among methods should be made by professional managers to fit specific situations with the objective of attaining desired levels of biodiversity at the landscape level. The problem is not in the options themselves but in the system of motivation and control within which choices are made. Too often in the past, choice among methods has been driven by financial rather than ecological considerations. Some use of even-aged methods will continue to be ecologically desirable because of their value in producing particular kinds forest structures. Enhancement of diversity and ecosystem integrity can probably be best achieved by avoiding over-reliance on any one set of silvicultural methods. Given the need to address increasingly complex issues of forest land management it is important to retain all silvicultural methods for potential use.



Association of Consulting Foresters of America, Inc.

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Tel (301) 530-6795 • Fax (301) 530-5128

October 25, 1993

The Honorable Charlie Rose
U.S. House of Representatives
2230 RHOB
Washington, DC 20515-3307

Dear Representative Rose:

The Association of Consulting Foresters of America, Inc., is composed of individuals who provide forestry and environmental services to Private Non-Industrial Forest Landowners, our major clients. Our members manage forest land in every major forest area of the United States and Canada.

The Association takes exception to HR 1164 for the following reasons. Certain species of trees require exacting biological conditions to regenerate. Some forest types become susceptible to damage and destruction if they are opened up too much from a partial cutting or thinning. Other species of trees degrade in value or disappear entirely if the forest is opened too much from a partial cutting.

Species of oak and other hardwoods do not tolerate competition for sunlight when regenerating. If partial cuttings are used when harvesting these species, the forests will not regenerate to their native types. Less desirable tree species eventually replace the original species. Clearcutting is the only silviculture regeneration method which provides the full sunlight required for successful regeneration.

Thinnings and selective cuttings can damage the integrity of other forest types, such as Virginia pine and lodgepole pine. Entire stands of these trees are often destroyed from high winds (windthrow) after a thinning or partial cut.

Restricting the silvicultural tools foresters may use, as this Bill will do if it becomes law, adversely impacts the ability of foresters to soundly manage this Nation's forests. Clearcutting is a proven, sound and necessary silvicultural tool which achieves forest and environmental management goals. Over 30 years of forest research confirms and supports this fact.

The reasoning behind this Bill is to eliminate clearcutting and prohibit even-aged management so that biodiversity will be maintained or increased. No evidence exists to sustain this and in reality it is scientifically incorrect. Passage of this Bill will actually be counter productive.

We respectfully ask your assistance in seeing that this Bill is tabled or voted down. If you or your staff require additional information, the ACF is available to provide assistance.

Sincerely,

Robert C. McColly

Robert C. McColly,
President



AMERICAN FARM BUREAU FEDERATION

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November 2, 1993

The Honorable Charles Rose
Chairman
House Agriculture Subcommittee
on Specialty Crops and Natural Resources
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Rose:

The American Farm Bureau Federation is strongly opposed to H.R. 1164 as currently drafted. The management of public lands for the use and benefit of citizens of the United States is the cornerstone of a balanced multiple use policy. Federal forest lands can provide a variety of benefits to society if properly managed. Professional foresters should have access to all management tools on federal forest lands. Regenerating trees and maintaining the varied habitat needed for many species of plants and animals can be facilitated through the use of even-aged management.

Meeting the competing needs and desires of a growing population for timber, recreation and biodiversity will never be an easy public policy decision. Striking a reasonable balance among those interests must be our goal. H.R. 1164, by restricting accepted forest management practices, fails to achieve an acceptable balance or recognize that forest products are renewable resources.

Sincerely,

Richard W. Newpher
Executive Director
Washington Office

RWN/lh



Intertribal Timber Council

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Alabama - Coushatta Indian
Tribes of Texas
Bad River Band of Lake
Superior Chippewas
Blackfeet Tribe
Chippewa Cree Tribe
Choctaw Nation of Oklahoma
Coeur d'Alene
Colville
Confederated Salish & Kootenai
Confederated Tribes of Grand
Ronde
Confederated Tribes of Warm
Springs
Copper River Native Association
Dayton, Ltd.
Eastern Band of Cherokee
Fond du Lac Forest
Management
Gana-A-Yoo, Ltd.
Grand Portage Reservation
Hoopa Valley Tribal Council
Houillon Band of Maliseet
Indians
Hualapai Tribal Forestry
Jicarilla Apache Tribe
Kaisapal Tribe of Indians
Keweenaw Bay Indian
Community
Klawaick Heenwa Corporation
Klawaick Forest Products, Inc.
Kancol Forest Products
Leech Lake Chippewas
Lummi
Makah Tribal Council
Menominee
Mesquero Apache Tribe
Metlakatla Indian Community
Mille Lacs Band of Chippewa
Indians
Mississippi Band of Choctaw
Navajo Nation
Nez Perce
Northern Cheyenne
Passamaquoddy
Pawnee Nation
Pueblo of Acoma
Pueblo of Zuni
Quinault Indian Nation
Red Lake Band of Chippewa
San Carlos Apache Tribe
Sealaska Corporation
Seneca Nation
Shielt
Sokaogon Chippewa
Community
Southern Ute Indian Tribe
Spokane
Stockbridge - Munsee
Community
Tanana Chiefs Conference, Inc.
Tlingit & Haida Central Council
Tozini, Limited
Tulalip
Tule River
Turtle Mountain Tribe
White Mountain Apache
Yakima Indian Nation

November 9, 1993

The Honorable Charlie Rose, Chairman
Agriculture Subcommittee on Specialty Crops
and Natural Resources
1301 Longworth House Office Building
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Rose:

I am writing to convey the comments of the Intertribal Timber Council regarding H.R. 1164, the Forest Biodiversity and Clearcutting Prohibition Act of 1993, on which your Subcommittee held a hearing October 28, 1993. I request that this letter be made a part of the Subcommittee's hearing record on H.R. 1164.

The Intertribal Timber Council

The Intertribal Timber Council is a seventeen year old organization of sixty Indian Tribes and Alaska Native organizations with substantial forest lands. Collectively, the I.T.C. member Tribes hold more than 90% of the 5.7 million commercial acres - and a substantial portion of the 8.7 million woodland acres - that are under trust management for tribes by the Bureau of Indian Affairs in the U.S. Department of the Interior.

H.R. 1164's application to Tribes

Mr. Chairman, the Intertribal Timber Council requests that Section 6 of H.R. 1164 be deleted from that legislation on the grounds that Indian trust lands are not U.S. public lands and that subjugation of tribal interests to provide public benefits is improper. Section 6 would apply restrictive Federal forest management policies intended for U.S. public lands to Indian lands held in trust for the tribes by the U.S. government. Section 6 would amend the National Indian Forest Resources Management Act (PL 101-630, Title III) to restrict the management of Indian trust forest lands by imposing requirements to conserve and restore biodiversity and prohibit even-aged forest practices. Section 6 could also authorize any U.S. citizen to sue an Indian tribe for alleged violations of the Act.

Impact of H.R. 1164 on Tribes

The application of H.R. 1164's restrictions to Indian trust forests would be devastating to Indian tribes. The restrictions would diminish the tribal governments' sovereign authority to determine, within the bounds of the trust, the use of their land, and would infringe on the tribal governments' sovereign immunity from suit. H.R. 1164 would interfere with the Federal government's legal obligations as trustee to manage the land for its Indian beneficiaries. The bill would violate the long-established Federal policy of Self-Determination for Indian tribal governments, and would impose financial hardship on many already impoverished Indian communities, depriving the tribes and their members of needed employment and other economic benefits of the forest. And H.R. 1164's restrictions could expose the Federal government to liability for the conversion of private property to public purposes.

We hope that the application of H.R. 1164's restrictions to Indian forests is mistaken, due to an unfamiliarity with the unique nature of Indian trust lands and the historic, treaty-based relationship between tribes and the United States.

Indian trust land

Indian trust lands, including their forests, are not U.S. public property. They are held in trust by the U.S. for the exclusive use and benefit of the Indian people thereon. The great majority of these trust lands are Indian reservations specifically retained for the tribes in treaties with the U.S. that ceded vast amounts of aboriginal tribal territory. To preserve and protect these reservations and other Indian land for the Indian people, the United States takes the land's title into trust. As trustee, the U.S. has a fiduciary obligation to manage the land for the benefit of the Indians for whom it is held in trust, not the U.S. public. The rights to the land, including rights to determine its use, enjoy its benefits, restrict entry and to receive compensation for 5th Amendment conversion to public use, are retained by the tribe or its individual Indian owner. This trust relationship is unique; the holding of title to trust lands by the Federal government should not be construed as meaning Indian trust lands are U.S. public lands that are subject to management for public benefit.

Tribal sovereignty

Within Indian reservations, tribal governments exercise inherent sovereign powers, including jurisdiction over Indian people, sovereign immunity from law suits, and authority over the use of their lands. The preservation of these powers is essential to continued tribal governmental existence, and we resist any effort to diminish or infringe on these powers. It is inappropriate for the U.S. Congress, in an effort to convey some benefit to the U.S. public at large, or to offset some mismanagement of U.S. public lands, to impose restrictions on tribal lands, diminishing both the tribes' sovereign rights to administer their own land and their ability to enjoy its benefits. These Federal restrictions are particularly inappropriate when the very purpose the Federal government assumes title to Indian land is to protect it for the tribes' exclusive use and benefit.

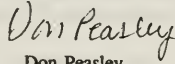
Tribal governments must determine the management practices most appropriate to apply to their lands. Tribal governments are keenly aware of their limited land bases, their community's needs, and their obligations to future generations. They have been living with their land and its resources for a very long time, and fully recognize that the decisions how best to

address all these issues are not easy. But, the decisions are the tribes' to make, and must not be imposed upon the tribes in response to some outside concern.

Accordingly, we ask that Section 6 be deleted from H.R. 1164.

We hope that, in any Subcommittee or Committee consideration of H.R. 1164, you will accommodate our request. If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Don Peasley".

Don Peasley
President

**A STATEMENT FOR THE RECORD SUBMITTED TO
THE HOUSE SPECIALTY CROPS AND NATURAL RESOURCES SUBCOMMITTEE
ON H.R. 1164, THE "FOREST BIODIVERSITY AND CLEARCUTTING
PROHIBITION ACT OF 1993"**

**by Gary J. Taylor, Legislative Counsel
International Association of Fish and Wildlife Agencies
November 5, 1993**

The Association appreciates the opportunity to submit a statement for the record on H.R. 1164. While the Association does not endorse the universal application of even-aged management or any other specific silvicultural system for fish and wildlife conservation, we conversely do not support a prohibition against even-age management on public lands. The Association advocates that this or any other technique should remain available for use, where appropriate, by the professionally trained natural resource managers based on their professional judgment using sound resource management science. The Association thus must oppose the passage of H.R. 1164.

The International Association of Fish and Wildlife Agencies, founded in 1902, is a quasi-governmental organization of public agencies charged with the protection and management of North America's fish and wildlife resources. The Association's governmental members include fish and wildlife agencies of the states, provinces, and federal governments of the U.S., Canada, and Mexico. All 50 states are members. The Association has been a key organization in promoting sound resource management and strengthening federal, state, and private cooperation in protecting and managing fish and wildlife and their habitats in the public interest.

The State fish and wildlife agencies have a vital and vested interest in forest habitat management on Federal public lands. During the last 20 years, a number of Congressional enactments have expanded federal jurisdiction over certain species of fish and wildlife traditionally managed by the States. However, except for certain species of marine mammals, under these Congressional enactments, state jurisdiction remains concurrent with federal authority for endangered and threatened species, migratory birds, and anadromous fish. State authority for fish and resident wildlife remains the comprehensive backdrop applicable in the absence of specific, overriding Federal law. This authority applies in most cases to Federal public lands.

On national forests and BLM-administered lands, authority with respect to fish and wildlife resources is shared, with land management and habitat authority residing in the federal administrators, while direct authority relating to surveys, inventories and the regulation of taking of fish and wildlife being reserved explicitly by Congress to the States. Jurisdiction is also concurrent on units of the National Wildlife Refuge System and of the National Recreation Area System. I refer you to the provisions of the Multiple Use-Sustained Yield Act of 1960; the Federal Land Policy and Management Act of 1976; Sikes Act; National Wildlife Refuge Administration Act of 1966; the Endangered Species Act of 1973; and the Magnuson Fishery Conservation and Management Act as references for these statutory provisions.

Concurrent jurisdiction with respect to fish and wildlife, and its application to U.S. Department of Interior administered lands, is also discussed generally in the Department of Interior Fish and Wildlife Policy: State-Federal Relationships, 43 CFR Part 24. U.S. Department of Agriculture policy (Secretary Memorandum at 9500-3) and regulation regarding management of the National Forests and Grasslands recognize that States have broad trustee and stewardship responsibility over fish and wildlife conservation and the regulation of their use, even on Federal lands. We establish this long and successful history of Federal-State partnership in managing fish and wildlife on Federal public lands to share with the subcommittee our member agencies' standing on the subject of the bill before the subcommittee.

The Association also certainly embraces many of the concepts and application of uneven-aged forestry as a legitimate, useful and appropriate technique for balanced forest conservation in certain habitats. Modifications of harvest rotation length and schedules using selection harvest, amending guidelines for forest stand composition and age regimes, and different silviculture systems including varying harvests methods are valid and useful techniques for the conservation of forest habitats and the biota that they support, and to provide for sustained fiber production. We see this as the appropriate role of the professionally trained foresters, fisheries and wildlife biologists, and other disciplines to apply these techniques on a local basis as a result of scientifically conducted surveys and inventories of both the forest stand and the fauna and flora that it supports, while integrating the multiple resource objectives into the forest management plans.

However, the Association has serious concerns about a Congressional mandate to apply specific silvicultural and management techniques as a mandate for management of Federal forest lands. In our opinion, Congress should not be dictating specific management techniques such as the prohibition against even-aged logging as outlined in H.R. 1164. Rather, Congress should establish and promote policy and general guidelines and frameworks within which professional managers employ their expertise and a consideration of the local conditions to carry out specific management for forest ecosystems. We are concerned with what appears to be increasing interest by Congress in preempting, through legislative fiat, the application of scientific management by resource professionals. Natural resource professionals in forestry, fisheries and wildlife, and other related fields of conservation biology, have extensive academic and field training which enables them to make the many detailed land management decisions including reconciling a number of different resource conservation and production objectives. Congress should not, in our opinion, seek to micro-manage our public lands.

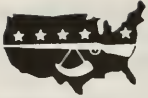
Without belaboring the point, the Association also respectfully suggests that "one size fits all" policy solutions are generally both inappropriate and unsuccessful at resolving an issue. The great abundance and benefit of the natural resources of the United States derive, in part, from the diversity represented in the many ecosystems of this country. It is simplistic to suggest that a prohibition on even-aged forest management would universally benefit the many habitats and ecosystems represented in the U.S. The Association again strongly urges that the application

of the appropriate silvicultural techniques for the conservation of the different forest ecosystems remain at the direction of the professionally trained natural resource managers. It would not be prudent, in our opinion, to remove even-aged management as a tool from these professionals.

As you are aware, even-aged management (including clearcutting) is a necessary and appropriate technique in some forest ecosystems to promote the health, vitality and regeneration of those habitats, and the fish and wildlife that are supported by those habitats. Early successional habitat, such as that created by even-aged management, occurred historically through fire, disease and other natural events, creating a diverse landscape of vegetative types. Today, we attempt to control these natural events as much as possible, to minimize their harmful effects. In the absence of these natural factors, properly planned even-aged management through clearcutting can be an important and financially efficient management tool to achieve the structural and biological diversity on the forest once created by natural events. Where appropriate, and as applied by professionally trained resource managers, this practice can create and maintain a mosaic of vegetative species and age classes on Federal forest land for wildlife species requiring these types of habitat for all or part of their life needs.

Forest openings created by even-aged management are necessary habitat components for several species. For example, wild turkey utilize these as feeding areas for sources of required insect protein for young birds. The fruits and berries produced by these habitats are beneficial to black bears, white tailed deer and many songbirds. Small raptors, such as the kestrel, and the Eastern bluebird require cavities found in snag trees left in clearcuts for nesting. Ruffed grouse find food and cover in the habitat created by clearcuts, and even-aged management is necessary to ensure the regeneration of the appropriate stand composition and age and size class for this species. Without even-aged management on southwestern forests, objectives for grazing habitat for deer, antelope and other large ungulates may not be met. Many raptors which nest in forest ecosystems need open areas in which to hunt and secure prey. These few examples illustrate the need to maintain even-aged management, as applied by professionally trained resource managers, as a technique for wildlife management.

In summary, the Association must oppose the specific Congressional mandate against even-aged forest management on Federal public lands, which would be imposed by H.R. 1164. Even-aged harvest as a silvicultural tool is beneficial, under the appropriate circumstances in certain habitat, for maintaining the habitat required by various wildlife species. The use of this tool should remain in the hands of the professionally trained natural resource manager, and applied using their best judgment based on the principles of sound resource management science.



THE WILDLIFE LEGISLATIVE FUND OF AMERICA
To protect the Heritage of the American Sportsman to hunt, to fish and to trap.

National Affairs Office
1000 Connecticut Avenue, N.W.
Suite 1202
Washington, D.C. 20036
202/466-4407 FAX 202/466-8727

STATEMENT BY

THE WILDLIFE LEGISLATIVE FUND OF AMERICA

REGARDING

H.R. 1164

"FOREST BIODIVERSITY AND CLEARCUTTING PROHIBITION ACT"

The Wildlife Legislative Fund of America opposes H.R. 1164, the "Forest Biodiversity and Clearcutting Prohibition Act of 1993." H.R. 1164 would eliminate traditional conservation tools and practices from the management equation and mandates a dubious and questionable prescription for management of federal lands.

The Wildlife Legislative Fund of America (WLFA) is an association of sportsmen's conservation organizations established to protect the heritage of the American sportsman to hunt, fish and trap. Through its associated organizations, the WLFA represents an aggregate membership of more than 1.5 million sportsmen-conservationists.

The WLFA is opposed to the elimination of clearcutting and other forms of even-age logging as a management tool. Although the legislation suggests that clearcutting and even-age logging are detrimental to the broad array of flora and fauna that exists on federal lands, these practices also result in a new complexity of plant and animal life upon which various forms of wildlife are very much dependent. Game and non-game species are equally dependent upon the many benefits resulting from even-age logging. Furthermore, certain endangered species such as Kirtland's Warbler are wholly dependent on habitat created by clearcutting.

The WLFA is concerned with the establishment of a national policy to manage federal lands for the purpose of conserving or achieving "native biodiversity." The term "native biodiversity" is loosely defined in the legislation and could be used to attack and thwart a range of existing wildlife management practices. Most management programs are designed to benefit particular species (e.g., black ducks, Florida panthers) or classes of species (e.g., those dependent on successional growth such as deer, ruffed grouse, quail or rabbits). By enhancing particular habitats and related species the otherwise natural order is altered. For example, many managed areas are operated to maximize successional habitat for the benefit of species including woodcock, deer, turkeys, and grouse. This maximization of successional habitat can be construed as inconsistent with "native biodiversity." The WLFA is persuaded that anti-management interests will exploit this goal to cripple traditional management programs.

The WLFA is opposed to H.R. 1164, the "Forest Biodiversity and Clearcutting Prohibition Act of 1993." The demand for ironclad and unnecessary scientific standards will divert critical manpower and funds. At the least, the measure will give rise to endless court suits and the judiciary will ultimately decide what "native biodiversity" means regardless of the intent of Congress and the understandings of the wildlife conservation community.

103D CONGRESS
1ST SESSION

H. R. 1164

To amend the Forest and Rangeland Renewable Resources Planning Act of 1974, the Federal Land Policy and Management Act of 1976, the National Wildlife Refuge System Administration Act of 1966, the National Indian Forest Resources Management Act, and title 10, United States Code, to strengthen the protection of native biodiversity and to place restraints upon clearcutting and certain other cutting practices on the forests of the United States.

IN THE HOUSE OF REPRESENTATIVES

MARCH 2, 1993

Mr. BRYANT (for himself, Mr. PORTER, Mr. OLVER, Mr. PETE GEREN of Texas, Mr. TORRES, Mr. RAVENEL, Mr. BLACKWELL, Mr. PAYNE of New Jersey, Mr. NADLER, Mr. COLEMAN, Mr. CONYERS, Mr. HAMBURG, Mr. CARDIN, Mr. MACHTLEY, Mr. STARK, Mr. POSHARD, Mr. BERMAN, Mr. FILNER, Mr. DELLUMS, Mr. MORAN, Mr. WALSH, Ms. NORTON, Mr. BEILENSEN, Mr. WAXMAN, Mrs. KENNELLY, Mr. HENRY, Mr. ANDREWS of Texas, Mr. FROST, and Mrs. MALONEY) introduced the following bill; which was referred jointly to the Committees on Natural Resources, Agriculture, Merchant Marine and Fisheries, and Armed Services

MAY 26, 1993

Additional sponsors: Mr. FRANKS of New Jersey, Mr. WASHINGTON, Mr. EVANS, Mr. SERRANO, Ms. BYRNE, Mr. NEAL of Massachusetts, Ms. ESHOO, Mr. SCHUMER, Mr. SMITH of Texas, Mr. ACKERMAN, Mr. BACCHUS of Florida, Mr. MCCLOSKEY, Mr. JACOBS, Mr. RANGEL, Mr. MINETA, Mr. MARKEY, Mrs. LOWEY, Mr. BORSKI, and Mr. BROWN of California

SEPTEMBER 17, 1993

Additional sponsors: Ms. ROYBAL-ALLARD, Mr. ENGEL, Mr. YATES, Mrs. MORELLA, Mr. EDWARDS of California, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. ANDREWS of New Jersey, Miss COLLINS of Michigan, Mr. HORN, Mr. FRANK of Massachusetts, Mr. FARR of California, Mr. TORRICELLI, Mr. GENE GREEN of Texas, Mr. SHAYS, Mr. BECERRA, Mr. BARRETT of Wisconsin, Mr. GILCHREST, Mr. COSTELLO, and Mr. CLAY

A BILL

To amend the Forest and Rangeland Renewable Resources Planning Act of 1974, the Federal Land Policy and Management Act of 1976, the National Wildlife Refuge System Administration Act of 1966, the National Indian Forest Resources Management Act, and title 10, United States Code, to strengthen the protection of native biodiversity and to place restraints upon clearcutting and certain other cutting practices on the forests of the United States.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Forest Biodiversity
5 and Clearcutting Prohibition Act of 1993”.

6 **SEC. 2. PURPOSES AND FINDINGS.**

7 (a) **PURPOSES.**—The purposes of this Act are, in all
8 timberland owned or operated by the United States where
9 logging is permitted, to conserve native biodiversity and
10 to protect all native ecosystems against losses that result
11 from clearcutting and other forms of even-age logging.

12 (b) **FINDINGS.**—Congress finds the following:

13 (1) Federal agencies of the United States that
14 engage in even-age logging practices include the
15 Forest Service of the Department of Agriculture, the
16 United States Fish and Wildlife Service, Bureau of
17 Land Management, and Bureau of Indian Affairs of

1 the Department of the Interior, and the Army,
2 Navy, and Air Force of the Department of Defense.

3 (2) Even-age logging causes a substantial re-
4 duction in native biodiversity by emphasizing the
5 production of a limited number of commercial spe-
6 cies of trees on each site, generally only one; by ma-
7 nipulating the vegetation toward greater relative
8 density of such commercial species, by suppressing
9 competing species, and by planting, on numerous
10 sites, a commercial strain that was developed to re-
11 duce the relative diversity of genetic strains that
12 previously occurred within the species on the same
13 sites.

14 (3) Even-age logging kills immobile species and
15 the very young of mobile species of wildlife and de-
16 pletes the habitat of deep-forest species of animals,
17 including endangered species.

18 (4) Even-age logging exposes the soil to direct
19 sunlight, impact of rains, disruption of surface, and
20 compaction of organic layers, and disrupts the run-
21 off restraining capabilities of roots and low-lying
22 vegetation, resulting in soil erosion, leaching out of
23 nutrients, reduction in biological content of the soil,
24 and impoverishment of the soil, with long-range dele-

1 terious effect on all land resources, even timber
2 production.

3 (5) Even-age logging decreases the capability of
4 the soil to retain carbon and, during the critical pe-
5 riods of felling and site preparation, reduces the ca-
6 pacity of the biomass to process and to store carbon,
7 with a result of loss of such carbon to the atmos-
8 phere, thereby aggravating global warming.

9 (6) Even-age logging renders the soil increas-
10 ingly sensitive to acid deposition by causing decline
11 of soil wood and coarse woody debris, reducing site
12 capacity for retention of water and nutrients, in-
13 creasing soil heat, and impairing the maintenance of
14 protective carbon compounds on the soil surface.

15 (7) Even-age logging results in increased
16 stream sedimentation, siltation of stream bottoms,
17 decline in water quality, impairment of life cycles
18 and spawning processes of aquatic life from benthic
19 organisms to large fish, thereby depleting the sports
20 and commercial fisheries of the United States.

21 (8) Even-age logging results in lessening resist-
22 ance in the plant community, including the commer-
23 cial tree crop, to insects and diseases, under the eco-
24 logical principle that as the relative density of a spe-
25 cies in a given area approaches totality the popu-

1 lation of that species in that area becomes increas-
2 ingly susceptible to insects and diseases.

3 (9) Even-age logging increases harmful edge ef-
4 fects, including blowdowns, invasions by weed spe-
5 cies, and heavier losses to predators and competi-
6 tors, from raccoons and hawks to ratsnakes and
7 cowbirds.

8 (10) Even-age logging decreases recreational di-
9 versity, reducing deep, canopied, variegated, perma-
10 nent forests, where the public can fulfill an expand-
11 ing need for recreation. Even-age logging replaces
12 such forests with a surplus of clearings that grow
13 into relatively impenetrable thickets of saplings, and
14 then into monotonous plantations.

15 (11) Human beings depend on native biological
16 resources, including plants, animals, and micro-orga-
17 nisms, for food, medicine, shelter, and other impor-
18 tant products, and as a source of intellectual and
19 scientific knowledge, recreation, and aesthetic pleas-
20 ure.

21 (12) Reduction in native biodiversity has seri-
22 ous consequences for human welfare as America
23 irretrievably loses resources for research and agricul-
24 tural, medicinal, and industrial development.

1 (13) Reduction of biological diversity in Federal
2 forests adversely affects the functions of ecosystems
3 and critical ecosystem processes that moderate cli-
4 mate, govern nutrient cycles and soil conservation
5 and production, control pests and diseases, and
6 degrade wastes and pollutants.

7 (14) The harm of even-age logging to the natu-
8 ral resources of this Nation and the quality of life
9 of its people are substantial, severe, and avoidable.

10 (15) By substituting selection management and
11 native biodiversity protection, as prescribed in this
12 Act, for the even-age system, the Federal agencies
13 now engaged in even-age logging would substantially
14 reduce or eliminate devastation to the environment,
15 would maintain vital native ecosystems in Federal
16 forests, and would improve the quality of life of the
17 American people.

18 (16) Selection logging is more job intensive,
19 therefore providing more employment than even-age
20 cutting for managing the same amount of timber
21 production, and produces higher quality sawlogs.

22 (17) The court remedies now available for citi-
23 zens to utilize in the enforcement of Federal forest
24 laws are inadequate, and should be strengthened by
25 providing for actions by citizens for injunctions, de-

1 claratory judgments, civil penalties, and reasonable
2 costs of suit.

3 **SEC. 3. AMENDMENT OF RANGELAND AND RENEWABLE RE-**
4 **SOURCES PLANNING ACT OF 1974 RELATING**
5 **TO NATIONAL FOREST SYSTEM LANDS.**

6 (a) CONSERVATION OF NATIVE BIODIVERSITY.—Sec-
7 tion 6(g)(3)(B) of the Forest and Rangeland Renewable
8 Resources Planning Act of 1974 (16 U.S.C.
9 1604(g)(3)(B)) is amended to read as follows:

10 “(B) in each stand that is managed or op-
11 erated for timber purposes, throughout each
12 forested area, provide for the conservation or
13 restoration of native biodiversity except during
14 the extraction stage of authorized mineral de-
15 velopment or during authorized construction
16 projects, in which events the Secretary shall
17 conserve native biodiversity to the extent pos-
18 sible;”.

19 (b) COMMITTEE OF SCIENTISTS.—Section 6(h)(1) of
20 the Forest and Rangeland Renewable Resources Planning
21 Act of 1974 (16 U.S.C. 1604(h)(1)) is amended to read
22 as follows:

23 “(h) COMMITTEE OF SCIENTISTS.—(1) In carrying
24 out the purposes of subsection (g) of this section, the Sec-
25 retary shall appoint a committee of scientists who are not

1 officers or employees of the Forest Service nor of any
2 other public entity, nor of any entity engaged in whole
3 or in part in the production of wood or wood products,
4 and have not contracted with or represented any of such
5 entities within a period of 5 years prior to serving on such
6 committee. The committee shall provide scientific and
7 technical advice and counsel on proposed guidelines and
8 procedures to assure that an effective interdisciplinary ap-
9 proach is proposed and adopted. The committee shall ter-
10 minate after the expiration of 10 years from the date of
11 enactment of this paragraph.”.

12 (c) RESTRICTION ON USE OF CERTAIN LOGGING
13 PRACTICES.—Section 6 of the Forest and Rangeland Re-
14 newable Resources Planning Act of 1974 (16 U.S.C.
15 1604) is amended by adding at the end the following:

16 “(n) RESTRICTION ON USE OF CERTAIN LOGGING
17 PRACTICES.—(1) In each stand that is managed or oper-
18 ated for timber purposes throughout each forested area,
19 the guidelines under subsection (g)(3)(F) shall prohibit
20 any even-age logging and any even-age management after
21 one year after the date of enactment of this subsection.

22 “(2) On each site already under even-age manage-
23 ment, the Secretary shall (A) prescribe a shift to selection
24 management within one year, or (B) cease managing for
25 timber purposes and actively restore the native

1 biodiversity, or permit each site to regain its native :
2 biodiversity.

3 “(3) For the purposes of this subsection:

4 “(A) The term ‘native biodiversity’ means the
5 full range of variety and variability within and
6 among living organisms and the ecological complexes
7 in which they would have occurred in the absence of
8 significant human impact, and encompasses diver-
9 sity, within a species (genetic), within a community
10 of species (within-community), between communities
11 of species (between-communities), within a total area
12 such as a watershed (total area), along a plane from
13 ground to sky (vertical), and along the plane of the
14 earth-surface (horizontal). Vertical and horizontal
15 diversity apply to all the other aspects of diversity.

16 “(B) The terms ‘conserve’ and ‘conservation’
17 refer to protective measures for maintaining existing
18 native biological diversity and active measures for
19 restoring diversity through management efforts, in
20 order to protect, restore, and enhance as much of
21 the variety of species and communities as possible in
22 abundances and distributions that provide for their
23 continued existence and normal functioning, includ-
24 ing the viability of populations throughout their
25 natural geographic distributions.

1 “(C) The term ‘within-community diversity’
2 means the distinctive assemblages of species and ec-
3 ological processes that occur in different physical
4 settings of the biosphere and distinct parts of the
5 world.

6 “(D) The term ‘genetic diversity’ means the dif-
7 ferences in genetic composition within and among
8 populations of a given species.

9 “(E) The term ‘species diversity’ means the
10 richness and variety of native species in a particular
11 location of the world.

12 “(F) The term ‘group selection’ means a form
13 of selection management that emphasizes the peri-
14 odic removal of trees, including mature, undesirable,
15 and cull trees in small groups, where they occur that
16 way, with a result of (i) creating openings not to ex-
17 ceed in width in any direction the height of the tall-
18 est tree standing within 10 feet of the edge of the
19 group cut, and (ii) maintaining different age groups
20 in a given stand. In no event will more than 30 per-
21 cent of a stand be felled within 30 years.

22 “(G) The term ‘stand’ means a forest commu-
23 nity with enough identity by location, topography, or
24 dominant species to be managed as a unit, not to ex-
25 ceed 100 acres.

1 “(H) The term ‘clearcutting’ means the logging
2 of the commercial trees in a patch or stand in a
3 short period of time.

4 “(I) The term ‘even-age management’ means
5 the growing of commercial timber so that all trees
6 in a patch or stand are generally within 10 years of
7 the same age. Except for designated leave trees, or
8 clumps of trees, the patch or stand is logged, com-
9 pletely in any acre within a period of 30 years, by
10 clearcutting, salvage logging, seed-tree cutting or
11 shelterwood cutting, or any system other than selec-
12 tion management.

13 “(J) The term ‘salvage logging’ means the fell-
14 ing or further damaging, within any 30-year period,
15 of a greater basal area than 30 square feet per acre
16 of dead, damaged, or other trees, or any combination
17 of such trees.

18 “(K) The term ‘seed-tree cut’ means a logging
19 operation that leaves one or more seed trees, gen-
20 erally 6 to 10 per acre.

21 “(L) The term ‘selection management’ means
22 the application of logging and other actions needed
23 to maintain continuous high forest cover where such
24 cover naturally occurs, recurring natural regenera-
25 tion of all native species on the site, and the orderly

1 growth and development of trees through a range of
2 diameter or age classes to provide a sustained yield
3 of forest products. Cutting methods that develop and
4 maintain selection stands are individual-tree and
5 group selection. A goal of selection is improvement
6 of quality by continuously harvesting trees less likely
7 to contribute to the long-range health of the stand.

8 “(M) The term ‘shelterwood cut’ means an
9 even-aged silvicultural regeneration method under
10 which a minority of the mature stand is retained as
11 a seed source or protection during the regeneration
12 period. The standing mature trees, usually 10 to 20
13 per acre, are later removed in one or more cuttings.

14 “(N) The term ‘timber purposes’ shall include
15 the use, sale, lease, or distribution of trees, or the
16 felling of trees or portions of trees except to create
17 land space for a structure or other use.

18 “(4)(A)(i) The purpose of this paragraph is to foster
19 the widest possible enforcement of subsection (g)(3)(B)
20 and this subsection.

21 “(ii) Congress finds that all people of the United
22 States are injured by actions on lands to which subsection
23 (g)(3)(B) and this subsection apply.

24 “(B) The provisions of subsection (g)(3)(B) and this
25 subsection shall be enforced by the Secretary of Agri-

1 culture and the Attorney General of the United States
2 against any person who violates either of them.

3 “(C)(i) Any citizen may enforce any provision of sub-
4 section (g)(3)(B) and this subsection by bringing an action
5 for declaratory judgment, temporary restraining order, in-
6 junction, civil penalty, and other remedies against any al-
7 leged violator including the United States, in any district
8 court of the United States.

9 “(ii) The court, after determining a violation of either
10 of such subsections, shall impose a penalty of not less than
11 \$5,000 and not more than \$50,000 per violation, shall
12 issue one or more injunctions and other equitable relief
13 and shall award to the plaintiffs reasonable costs of litiga-
14 tion including attorney’s fees, witness fees and other nec-
15 essary expenses.

16 “(D) The penalty authorized by subparagraph (C)(ii)
17 shall be paid by the violator or violators designated by the
18 court. If that violator is the United States of America or
19 a Federal agency or officer, the penalty shall be paid to
20 the Judgment Fund, as provided by Congress under sec-
21 tion 1304 of title 31, United States Code.

22 “(E) The penalty shall be paid from the Judgment
23 Fund within 40 days after judgment to the person or per-
24 sons designated to receive it, to be applied in protecting
25 or restoring native biodiversity in or adjoining Federal

1 land. Any award of costs of litigation and any award of
2 attorney fees shall be paid within 40 days after judgment.

3 “(F) The United States, including its agents and em-
4 ployees waives its sovereign immunity in all respects in
5 all actions under subsection (g)(3)(B) and this subsection.
6 No notice is required to enforce this subsection.

7 “(5) No roads shall be constructed or reconstructed
8 in any roadless area, as defined in the second United
9 States Department of Agriculture Forest Service Roadless
10 Area Review and Evaluation (RARE II, 1978) or in a land
11 and resource management plan prepared pursuant to this
12 section.

13 (d) CONFORMING AMENDMENT.—Section 6(g)(2)(F)
14 of the Forest and Rangeland Renewable Resource Plan-
15 ning Act of 1974 (16 U.S.C. 1604(g)(2)(F)) is amended
16 by inserting “in accordance with subsection (g) and” after
17 “National Forest System lands.”.

18 **SEC. 4. AMENDMENT OF FEDERAL LAND POLICY AND MAN-**
19 **AGEMENT ACT OF 1976 RELATING TO THE**
20 **PUBLIC LANDS.**

21 (a) CONSERVATION OF NATIVE BIODIVERSITY.—Sec-
22 tion 202(c) of the Federal Land Policy and Management
23 Act of 1976 (43 U.S.C. 1712(c)) is amended—

24 (1) by redesignating paragraphs (8) and (9) as
25 paragraphs (9) and (10), respectively; and

(2) by inserting after paragraph (7) the following new paragraph (8):

“(8) in each stand that is managed or operated for timber purposes throughout each forested area provide for the conservation or restoration of native biodiversity except during the extraction stage of authorized mineral development or during authorized construction projects, in which events the Secretary shall conserve native biodiversity to the extent possible;”.

(b) RESTRICTION ON USE OF CERTAIN LOGGING PRACTICES.—Section 202 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712) is amended by adding at the end the following:

“(g) RESTRICTION ON USE OF CERTAIN LOGGING PRACTICES.—(1) In each stand that is managed or operated for timber purposes throughout each forested area, the Secretary under subsection (c)(8) shall prohibit any even-age logging and any even-age management after one year after the date of enactment of this subsection.

“(2) On each site already under even-age management, the Secretary shall (A) prescribe a shift to selection management within one year, or (B) cease managing for timber purposes and actively restore the native

1 biodiversity, or permit each site to regain its native
2 biodiversity

3 “(3) For the purposes of this subsection:

4 “(A) The term ‘native biodiversity’ means the
5 full range of variety and variability within and
6 among living organisms and the ecological complexes
7 in which they would have occurred in the absence of
8 significant human impact, and encompasses diver-
9 sity, within a species (genetic), within a community
10 of species (within-community), between communities
11 of species (between-communities), within a total area
12 such as a watershed (total area), along a plane from
13 ground to sky (vertical), and along the plane of the
14 earth-surface (horizontal). Vertical and horizontal
15 diversity apply to all the other aspects of diversity.

16 “(B) The terms ‘conserve’ and ‘conservation’
17 refer to protective measures for maintaining existing
18 native biological diversity and active measures for
19 restoring diversity through management efforts, in
20 order to protect, restore, and enhance as much of
21 the variety of species and communities as possible in
22 abundances and distributions that provide for their
23 continued existence and normal functioning, includ-
24 ing the viability of populations throughout their
25 natural geographic distributions.

1 “(C) The term ‘within-community diversity’
2 means the distinctive assemblages of species and ec-
3 ological processes that occur in different physical
4 settings of the biosphere and distinct parts of the
5 world.

6 “(D) The term ‘genetic diversity’ means the dif-
7 ferences in genetic composition within and among
8 populations of a given species.

9 “(E) The term ‘species diversity’ means the
10 richness and variety of native species in a particular
11 location of the world.

12 “(F) The term ‘group selection’ means a form
13 of selection management that emphasizes the peri-
14 odic removal of trees, including mature, undesirable,
15 and cull trees in small groups, where they occur that
16 way, with a result of (i) creating openings not to ex-
17 ceed in width in any direction the height of the tall-
18 est tree standing within 10 feet of the edge of the
19 group cut, and (ii) maintaining different age groups
20 in a given stand. In no event will more than 30 per-
21 cent of a stand be felled within 30 years.

22 “(G) The term ‘stand’ means a forest commu-
23 nity with enough identity by location, topography, or
24 dominant species to be managed as a unit, not to ex-
25 ceed 100 acres.

1 “(H) The term ‘clearcutting’ means the logging
2 of the commercial trees in a patch or stand in a
3 short period of time.

4 “(I) The term ‘even-age management’ means
5 the growing of commercial timber so that all trees
6 in a patch or stand are generally within 10 years of
7 the same age. Except for designated leave trees, or
8 clumps of trees, the patch or stand is logged, com-
9 pletely in any acre within a period of 30 years, by
10 clearcutting, salvage logging, seed-tree cutting or
11 shelterwood cutting, or any system other than selec-
12 tion management.

13 “(J) The term, ‘salvage logging’ means the fell-
14 ing or further damaging, within any 30-year period,
15 of a greater basal area than 30 square feet per acre
16 of dead, damaged, or other trees, or any combination
17 of such trees.

18 “(K) The term ‘seed-tree cut’ means a logging
19 operation that leaves one or more seed trees, gen-
20 erally 6 to 10 per acre.

21 “(L) The term ‘selection management’ means
22 the application of logging and other actions needed
23 to maintain continuous high forest cover where such
24 cover naturally occurs, recurring natural regenera-
25 tion of all native species on the site, and the orderly

1 growth and development of trees through a range of
2 diameter or age classes to provide a sustained yield
3 of forest products. Cutting methods that develop and
4 maintain selection stands are individual-tree and
5 group selection. A goal of selection is improvement
6 of quality by continuously harvesting trees less likely
7 to contribute to the long-range health of the stand.

8 “(M) The term ‘shelterwood cut’ means an
9 even-aged silvicultural regeneration method under
10 which a minority of the mature stand is retained as
11 a seed source or protection during the regeneration
12 period. The standing mature trees, usually 10 to 20
13 per acre, are later removed in one or more cuttings.

14 “(N) The term ‘timber purposes’ shall include
15 the use, sale, lease, or distribution of trees, or the
16 felling of trees or portions of trees except to create
17 land space for a structure or other use.

18 “(4)(A)(i) The purpose of this paragraph is to foster
19 the widest possible enforcement of subsection (c)(8) and
20 this subsection.

21 “(ii) Congress finds that all people of the United
22 States are injured by actions on lands to which subsection
23 (c)(8) and this subsection apply.

24 “(B) The provisions of subsection (c)(8) and this sub-
25 section shall be enforced by the Secretary of the Interior

1 and the Attorney General of the United States against any
2 person who violates either of them.

3 “(C)(i) Any citizen may enforce any provision of sub-
4 section (c)(8) and this subsection by bringing an action
5 for declaratory judgment, temporary restraining order, in-
6 junction, civil penalty, and other remedies against any al-
7 leged violator including the United States, in any district
8 court of the United States.

9 “(ii) The court, after determining a violation of either
10 of such subsections, shall impose a penalty of not less than
11 \$5,000 and not more than \$50,000 per violation, shall
12 issue one or more injunctions and other equitable relief
13 and shall award to the plaintiffs reasonable costs of litiga-
14 tion including attorney’s fees, witness fees and other
15 necessary expenses.

16 “(D) The penalty authorized by subparagraph (C) (ii)
17 shall be paid by the violator or violators designated by the
18 court. If that violator is the United States of America or
19 a Federal agency or officer, the penalty shall be paid to
20 the Judgment Fund, as provided by Congress under
21 section 1304 of title 31, United States Code.

22 “(E) The penalty shall be paid from the Judgment
23 Fund within 40 days after judgment to the person or per-
24 sons designated to receive it, to be applied in protecting
25 or restoring native biodiversity in or adjoining Federal

1 land. Any award of costs of litigation and any award of
2 attorney fees shall be paid within 40 days after judgment.

3 “(F) The United States, including its agents and em-
4 ployees waives its sovereign immunity in all respects in
5 all actions under subsection (c)(8) and this subsection. No
6 notice is required to enforce this subsection.

7 “(5) No roads shall be constructed or reconstructed
8 in any Bureau of Land Management roadless areas
9 inventoried pursuant to this Act.”.

10 (c) REPEAL.—Subsection (b) of section 701 of the
11 Federal Land Policy and Management Act of 1976 (43
12 U.S.C. 1701 note) is hereby repealed.

13 **SEC. 5. AMENDMENT OF NATIONAL WILDLIFE REFUGE SYS-**
14 **TEM ADMINISTRATION ACT OF 1966 RELAT-**
15 **ING TO THE NATIONAL WILDLIFE REFUGE**
16 **SYSTEM.**

17 Section 4 of the National Wildlife Refuge System Ad-
18 ministration Act of 1966 (16 U.S.C. 668dd) is amended
19 by adding at the end the following:

20 “(j) CONSERVATION OF NATIVE BIODIVERSITY.—In
21 each stand that is managed or operated for timber pur-
22 poses throughout each forested area within the System,
23 the Secretary shall provide for the conservation or restora-
24 tion of native biodiversity, except during the extraction
25 stage of authorized mineral development or during author-

1 ized construction projects, in which events the Secretary
2 shall conserve native biodiversity to the extent possible.

3 “(k) RESTRICTION ON USE OF CERTAIN LOGGING
4 PRACTICES.—(1) In each stand that is managed or oper-
5 ated for timber purposes throughout each forested area
6 within the System, the Secretary under subsection (j) shall
7 prohibit any even-age logging and any even-age manage-
8 ment after one year after the date of enactment of this
9 subsection.

10 “(2) On each site already under even-age manage-
11 ment, the Secretary shall (A) prescribe a shift to selection
12 management within one year, or (B) cease managing for
13 timber purposes and actively restore the native
14 biodiversity, or permit each site to regain its native
15 biodiversity.

16 “(3) For the purposes of this subsection:

17 “(A) The term ‘native biodiversity’ means the
18 full range of variety and variability within and
19 among living organisms and the ecological complexes
20 in which they would have occurred in the absence of
21 significant human impact, and encompasses diver-
22 sity, within a species (genetic), within a community
23 of species (within-community), between communities
24 of species (between-communities), within a total area
25 such as a watershed (total area), along a plane from

1 ground to sky (vertical), and along the plane of the
2 earth-surface (horizontal). Vertical and horizontal
3 diversity apply to all the other aspects of diversity.

4 “(B) The terms ‘conserve’ and ‘conservation’
5 refer to protective measures for maintaining existing
6 native biological diversity and active measures for
7 restoring diversity through management efforts, in
8 order to protect, restore, and enhance as much of
9 the variety of species and communities as possible in
10 abundances and distributions that provide for their
11 continued existence and normal functioning, includ-
12 ing the viability of populations throughout their
13 natural geographic distributions.

14 “(C) The term ‘within-community diversity’
15 means the distinctive assemblages of species and ec-
16 ological processes that occur in different physical
17 settings of the biosphere and distinct parts of the
18 world.

19 “(D) The term ‘genetic diversity’ means the dif-
20 ferences in genetic composition within and among
21 populations of a given species.

22 “(E) The term ‘species diversity’ means the
23 richness and variety of native species in a particular
24 location of the world.

1 “(F) The term ‘group selection’ means a form
2 of selection management that emphasizes the peri-
3 odic removal of trees, including mature, undesirable,
4 and cull trees in small groups, where they occur that
5 way, with a result of (i) creating openings not to ex-
6 ceed in width in any direction the height of the tall-
7 est tree standing within 10 feet of the edge of the
8 group cut, and (ii) maintaining different age groups
9 in a given stand. In no event will more than 30 per-
10 cent of a stand be felled within thirty years.

11 “(G) The term ‘stand’ means a forest commu-
12 nity with enough identity by location, topography, or
13 dominant species to be managed as a unit, not to ex-
14 ceed 100 acres.

15 “(H) The term ‘clearcutting’ means the logging
16 of the commercial trees in a patch or stand in a
17 short period of time.

18 “(I) The term ‘even-age management’ means
19 the growing of commercial timber so that all trees
20 in a patch or stand are generally within 10 years of
21 the same age. Except for designated leave trees, or
22 clumps of trees, the patch or stand is logged, com-
23 pletely in any acre within a period of 30 years, by
24 clearcutting, salvage logging, seed-tree cutting or

1 shelterwood cutting, or any system other than selec-
2 tion management.

3 “(J) The term, ‘salvage logging’ means the fell-
4 ing or further damaging, within a 30-year period, of
5 a greater basal area than 30 square feet per acre of
6 dead, damaged, or other trees, or any combination
7 of such trees.

8 “(K) The term ‘seed-tree cut’ means a logging
9 operation that leaves one or more seed trees, gen-
10 erally 6 to 10 per acre.

11 “(L) The term ‘selection management’ means
12 the application of logging and other actions needed
13 to maintain continuous high forest cover where such
14 cover naturally occurs, recurring natural regenera-
15 tion of all native species on the site, and the orderly
16 growth and development of trees through a range of
17 diameter or age classes to provide a sustained yield
18 of forest products. Cutting methods that develop and
19 maintain selection stands are individual-tree and
20 group selection. A goal of selection is improvement
21 of quality by continuously harvesting trees less likely
22 to contribute to the long-range health of the stand.

23 “(M) The term ‘shelterwood cut’ means an
24 even-aged silvicultural regeneration method under
25 which a minority of the mature stand is retained as

1 a seed source or protection during the regeneration
2 period. The standing mature trees, usually 10 to 20
3 per acre, are later removed in one or more cuttings.

4 “(N) The term ‘timber purposes’ shall include
5 the use, sale, lease, or distribution of trees, or the
6 felling of trees or portions of trees except to create
7 land space for a structure or other use.

8 “(4)(A)(i) The purpose of this paragraph is to foster
9 the widest possible enforcement of subsection (j) and this
10 subsection.

11 “(ii) Congress finds that all people of the United
12 States are injured by actions on lands to which subsection
13 (j) and this subsection apply.

14 “(B) The provisions of subsection (j) and this sub-
15 section shall be enforced by the Secretary of the Interior
16 and the Attorney General of the United States against any
17 person who violates either of them.

18 “(C)(i) Any citizen may enforce any provision of this
19 subsection by bringing an action for declaratory judgment,
20 temporary restraining order, injunction, civil penalty, and
21 other remedies against any alleged violator including the
22 United States, in any district court of the United States.

23 “(ii) The court, after determining a violation of either
24 of such subsections, shall impose a penalty of not less than
25 \$5,000 and not more than \$50,000 per violation, shall

1 issue one or more injunctions and other equitable relief
2 and shall award to the plaintiffs reasonable costs of litigation
3 including attorney's fees, witness fees and other necessary
4 expenses.

5 “(D) The penalty authorized by subparagraph (C)(ii)
6 shall be paid by the violator or violators designed by the
7 court. If that violator is the United States of America or
8 a Federal agency or officer, the penalty shall be paid to
9 the Judgment Fund, as provided by Congress under section
10 1304 of title 31, United States Code.

11 “(E) The penalty should be paid from the Judgment
12 Fund within 40 days after judgment to the person or persons
13 designated to receive it, to be applied in protecting
14 or restoring native biodiversity in or adjoining Federal
15 land. Any award of costs of litigation and any award of
16 attorney fees shall be paid within 40 days after judgment.

17 “(F) The United States, including its agents and employees
18 waives its sovereign immunity in all respects in
19 all actions under subsection (j) and this subsection. No
20 notice is required to enforce this subsection.”.

1 SEC. 6. AMENDMENT OF NATIONAL INDIAN FOREST RE-
2 SOURCES MANAGEMENT ACT RELATING TO
3 INDIAN LANDS.

4 Section 305 of the National Indian Forest Resources
5 Management Act (25 U.S.C. 4535) is amended by adding
6 at the end the following new subsections:

7 “(c) CONSERVATION OF NATIVE BIODIVERSITY.—In
8 each stand that is managed or operated for timber pur-
9 poses in each forested area on Indian lands, the Secretary
10 shall provide for the conservation or restoration of native
11 biodiversity in each stand that is managed or operated for
12 timber purposes in each forested area on Indian lands ex-
13 cept during the extraction stage of authorized mineral de-
14 velopment or during authorized construction projects in
15 which events the Secretary shall conserve native
16 biodiversity to the extent possible.

17 “(d) RESTRICTION ON USE OF CERTAIN LOGGING
18 PRACTICES.—(1) In each stand that is managed or oper-
19 ated for timber purposes throughout each forested area
20 on Indian forest lands, the Secretary under subsection (c)
21 shall prohibit any even-age logging and any even-age man-
22 agement after one year after the date of enactment of this
23 subsection.

24 “(2) On each site already under even-age manage-
25 ment, the Secretary shall (A) prescribe a shift to selection
26 management within one year, or (B) cease managing for

1 timber purposes and actively restore the native
2 biodiversity, or permit each site to regain its native
3 biodiversity.

4 “(3) For the purposes of this section:

5 “(A) The term ‘native biodiversity’ means the
6 full range of variety and variability within and
7 among living organisms and the ecological complexes
8 in which they would have occurred in the absence of
9 significant human impact, and encompasses diver-
10 sity, within a species (genetic), within a community
11 of species (within-community), between communities
12 of species (between-communities), within a total area
13 such as a watershed (total area), along a plane from
14 ground to sky (vertical), and along the plane of the
15 earth-surface (horizontal). Vertical and horizontal
16 diversity apply to all the other aspects of diversity.

17 “(B) The terms ‘conserve’ and ‘conservation’
18 refer to protective measures for maintaining existing
19 native biological diversity and active measures for
20 restoring diversity through management efforts, in
21 order to protect, restore, and enhance as much of
22 the variety of species and communities as possible in
23 abundances and distributions that provide for their
24 continued existence and normal functioning, includ-

ing the viability of populations throughout their natural geographic distributions.

“(C) The term ‘within-community diversity’ means the distinctive assemblages of species and ecological processes that occur in different physical settings of the biosphere and distinct parts of the world.

“(D) The term ‘genetic diversity’ means the differences in genetic composition within and among populations of a given species.

“(E) The term ‘species diversity’ means the richness and variety of native species in a particular location of the world.

“(F) The term ‘group selection’ means a form of selection management that emphasizes the periodic removal of trees, including mature, undesirable, and cull trees in small groups, where they occur that way, with a result of (i) creating openings not to exceed in width in any direction the height of the tallest tree standing within 10 feet of the edge of the group cut, and (ii) maintaining different age groups in a given stand. In no event will more than 30 percent of a stand be felled within 30 years.

“(G) The term ‘stand’ means a forest community with enough identity by location, topography, or

1 dominant species to be managed as a unit, not to ex-
2 ceed 100 acres.

3 “(H) The term ‘clearcutting’ means the logging
4 of the commercial trees in a patch or stand in a
5 short period of time.

6 “(I) The term ‘even-age management’ means
7 the growing of commercial timber so that all trees
8 in a patch or stand are generally within 10 years of
9 the same age. Except for designated leave trees, or
10 clumps of trees, the patch or stand is logged, com-
11 pletely in any acre within a period of 30 years, by
12 clearcutting, salvage logging, seed-tree cutting or
13 shelterwood cutting, or any system other than selec-
14 tion management.

15 “(J) The term, ‘salvage logging’ means the fell-
16 ing or further damaging, within any 30-year period,
17 of a greater basal area than 30 square feet per acre
18 of dead, damaged, or other trees, or any combination
19 of such trees.

20 “(K) The term ‘seed-tree cut’ means a logging
21 operation that leaves one or more seed trees, gen-
22 erally 6 to 10 per acre.

23 “(L) The term ‘selection management’ means
24 the application of logging and other actions needed
25 to maintain continuous high forest cover where such

cover naturally occurs, recurring natural regeneration of all native species on the site, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting methods that develop and maintain selection stands are individual-tree and group selection. A goal of selection is improvement of quality by continuously harvesting trees less likely to contribute to the long-range health of the stand.

“(M) The term ‘shelterwood cut’ means an even-aged silvicultural regeneration method under which a minority of the mature stand is retained as a seed source or protection during the regeneration period. The standing mature trees, usually 10 to 20 per acre, are later removed in one or more cuttings.

“(N) The term ‘timber purposes’ shall include the use, sale, lease, or distribution of trees, or the felling of trees or portions of trees except to create land space for a structure or other use.

“(4)(A)(i) The purpose of this paragraph is to foster the widest possible enforcement of subsection (c) and this subsection.

“(ii) Congress finds that all people of the United States are injured by actions on lands to which subsection (c) and this subsection apply.

1 “(B) The provisions of subsection (c) and this sub-
2 section shall be enforced by the Secretary of the Interior
3 and the Attorney General of the United States against any
4 person who violates either of them.

5 “(C)(i) Any citizen may enforce any provision of sub-
6 section (c) and this subsection by bringing an action for
7 declaratory judgment, temporary restraining order, in-
8 junction, civil penalty, and other remedies against any al-
9 leged violator including the United States, in any district
10 court of the United States.

11 “(ii) The court, after determining a violation of either
12 of such subsections shall impose a penalty of not less than
13 \$5,000 and not more than \$50,000 per violation, shall
14 issue one or more injunctions and other equitable relief
15 and shall award to the plaintiffs reasonable costs of litiga-
16 tion including attorney’s fees, witness fees and other nec-
17 essary expenses.

18 “(D) The penalty authorized by subparagraph (C)(ii)
19 shall be paid by the violator or violators designated by the
20 court. If that violator is the United States of America or
21 a Federal agency or officer, the penalty shall be paid to
22 the Judgment Fund, as provided by Congress under sec-
23 tion 1304 of title 31, United States Code.

24 “(E) The penalty should be paid from the Judgment
25 Fund within 40 days after judgment to the person or per-

1 sons designated to receive it, to be applied in protecting
2 or restoring native biodiversity in or adjoining Federal
3 land. Any award of costs of litigation and any award of
4 attorney fees shall be paid within 40 days after judgment.

5 “(F) The United States, including its agents and em-
6 ployees waives its sovereign immunity in all respects in
7 all actions under subsection (c) and this subsection. No
8 notice is required to enforce this subsection.”.

9 **SEC. 7. AMENDMENT OF TITLE 10, UNITED STATES CODE,**
10 **RELATING TO FOREST MANAGEMENT ON**
11 **MILITARY LANDS.**

12 (a) IN GENERAL.—Chapter 159 of title 10, United
13 States Code, is amended by adding at the end the follow-
14 ing new section:

15 **“§ 2693. Conservation of native biodiversity**

16 “(a) CONSERVATION OF NATIVE BIODIVERSITY.—In
17 each stand that is operated for timber purposes through-
18 out each forested area on a military installation or projects
19 administered by the Army Corps of Engineers, the Sec-
20 retary concerned shall provide for the conservation or res-
21 toration of native biodiversity, except during authorized
22 construction projects in which events the Secretary shall
23 conserve native biodiversity to the extent possible.

24 “(b) RESTRICTION ON USE OF CERTAIN LOGGING
25 PRACTICES.—(1) In each stand that is managed or oper-

1 ated for timber purposes throughout each forested area
2 on a military installation or reservation and on a project
3 administered by the Army Corps of Engineers, the Sec-
4 retary under subsection (a) shall prohibit any even-age
5 logging and any even-age management after one year after
6 the date of enactment of this subsection.

7 “(2) On each site already under even-age manage-
8 ment, the Secretary shall (A) prescribe a shift to selection
9 management within one year, or (B) cease managing for
10 timber purposes and actively restore the native
11 biodiversity, or permit each site to regain its native
12 biodiversity.

13 “(3) In this section:

14 “(A) The term ‘native biodiversity’ means the
15 full range of variety and variability within and
16 among living organisms and the ecological complexes
17 in which they would have occurred in the absence of
18 significant human impact, and encompasses diver-
19 sity, within a species (genetic), within a community
20 of species (within-community), between communities
21 of species (between-communities), within a total area
22 such as a watershed (total area), along a plane from
23 ground to sky (vertical), and along the plane of the
24 earth-surface (horizontal). Vertical and horizontal
25 diversity apply to all the other aspects of diversity.

“(B) The terms ‘conserve’ and ‘conservation’ refer to protective measures for maintaining existing native biological diversity and active measures for restoring diversity through management efforts, in order to protect, restore, and enhance as much of the variety of species and communities as possible in abundances and distributions that provide for their continued existence and normal functioning, including the viability of populations throughout their natural geographic distributions.

“(C) The term ‘within-community diversity’ means the distinctive assemblages of species and ecological processes that occur in different physical settings of the biosphere and distinct parts of the world.

“(D) The term ‘genetic diversity’ means the differences in genetic composition within and among populations of a given species.

“(E) The term ‘species diversity’ means the richness and variety of native species in a particular location of the world.

“(F) The term ‘group selection’ means a form of selection management that emphasizes the periodic removal of trees, including mature, undesirable, and cull trees in small groups, where they occur that

1 way, with a result of (i) creating openings not to ex-
2 ceed in width in any direction the height of the tall-
3 est tree standing within 10 feet of the edge of the
4 group cut, and (ii) maintaining different age groups
5 in a given stand. In no event will more than 30 per-
6 cent of a stand be felled within 30 years.

7 “(G) The term ‘stand’ means a forest commu-
8 nity with enough identity by location, topography, or
9 dominant species to be managed as a unit, not to ex-
10 ceed 100 acres.

11 “(H) The term ‘clearcutting’ means the logging
12 of the commercial trees in a patch or stand in a
13 short period of time.

14 “(I) The term ‘even-age management’ means
15 the growing of commercial timber so that all trees
16 in a patch or stand are generally within 10 years of
17 the same age. Except for designated leave trees, or
18 clumps of trees, the patch or stand is logged com-
19 pletely in any acre within a period of 30 years, by
20 clearcutting, salvage logging, seed-tree cutting or
21 shelterwood cutting, or any system other than selec-
22 tion management.

23 “(J) The term, ‘salvage logging’ means the fell-
24 ing or further damaging, within any 30-year period,
25 of a greater basal area than 30 square feet per acre

1 of dead, damaged, or other trees, or any combination
2 of such trees.

3 “(K) The term ‘seed-tree cut’ means a logging
4 operation that leaves one or more seed trees, gen-
5 erally 6 to 10 per acre.

6 “(L) The term ‘selection management’ means
7 the application of logging and other actions needed
8 to maintain continuous high forest cover where such
9 cover naturally occurs, recurring natural regenera-
10 tion of all native species on the site, and the orderly
11 growth and development of trees through a range of
12 diameter or age classes to provide a sustained yield
13 of forest products. Cutting methods that develop and
14 maintain selection stands are individual-tree and
15 group selection. A goal of selection is improvement
16 of quality by continuously harvesting trees less likely
17 to contribute to the long-range health of the stand.

18 “(M) The term ‘shelterwood cut’ means an
19 even-aged silvicultural regeneration method under
20 which a minority of the mature stand is retained as
21 a seed source or protection during the regeneration
22 period. The standing mature trees, usually 10 to 20
23 per acre, are later removed in one or more cuttings.

24 “(N) The term ‘timber purposes’ shall include
25 the use, sale, lease, or distribution of trees, or the

1 felling of trees or portions of trees except to create
2 land space for a structure or other use.

3 “(4)(A)(i) The purpose of this paragraph is to foster
4 the widest possible enforcement of this section.

5 “(ii) Congress finds that all people of the United
6 States are injured by actions on lands to which this section
7 applies.

8 “(B) The provisions of this section shall be enforced
9 by the Secretary of Defense and the Attorney General of
10 the United States against any person who violates this sec-
11 tion.

12 “(C)(i) Any citizen may enforce any provision of this
13 section by bringing an action for declaratory judgment,
14 temporary restraining order, injunction, civil penalty, and
15 other remedies against any alleged violator including the
16 United States, in any district court of the United States.

17 “(ii) The court, after determining a violation of this
18 section, shall impose a penalty of not less than \$5,000 and
19 not more than \$50,000 per violation, shall issue one or
20 more injunctions and other equitable relief and shall
21 award to the plaintiffs reasonable costs of litigation in-
22 cluding attorney’s fees, witness fees and other necessary
23 expenses.

24 “(D) The penalty authorized by subparagraph (C)(ii)
25 shall be paid by the violator or violators designated by the

1 court. If that violator is the United States of America or
2 a Federal agency or officer, the penalty shall be paid to
3 the Judgment Fund, as provided by Congress under sec-
4 tion 1304 of title 31, United States Code.

5 “(E) The penalty should be paid from the Judgment
6 Fund within 40 days after judgment to the person or per-
7 sons designated to receive it, to be applied in protecting
8 or restoring native biodiversity in or adjoining Federal
9 land. Any award of costs of litigation and any award of
10 attorney fees shall be paid within 40 days after judgment.

11 “(F) The United States, including its agents and em-
12 ployees waives its sovereign immunity in all respects in
13 all actions under this section. No notice is required to en-
14 force this section.”.

15 (b) CONFORMING AMENDMENT.—The table of sec-
16 tions for chapter 159 of title 10, United States Code, is
17 amended by adding at the end the following new item:

“2693. Conservation of native biodiversity.”.

18 **SEC. 8. EFFECTIVE DATE.**

19 The amendments made by this Act shall not apply
20 with respect to any contract to sell timber which was
21 awarded on or before the date of enactment of this Act.

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